

TS 4200

seemann

## J7E CIRCUIT DESCRIPTION:

### A) TUNER

#### 1) Operation of the tuner:

The tuner converts the incoming frequencies from the LNB (950 to 2050 MHz) to the 2nd IF of 479.5 MHz. It filters the incoming wave form to 27 MHz bandwidth, through the contained SAW filter.

This unit also incorporates a PLL demodulator and frequency synthesized circuits which is controlled by the microprocessor via IIC bus.

#### 2) Description of terminals:

pin (1) : Power supply terminal for the LNB A.

pin (2) : Power supply terminal for the LNB B.

pin (5) : Base band output.

It is connected to the video and audio circuits.

pin (9) : AGC output.

The signal level voltage varies with input signal level. This is used for auto tuning feedback to the microprocessor. As the input level goes higher, its voltage goes down. The voltage changes from 4.4 V to 0.6 V.

pin (12) : +5V power supply.

Power supply terminal for internal digital circuits and signal processing circuits.

pin (14) : +25V power supply.

Power supply terminal for frequency synthesized circuit.

pin (15) : IIC bus address selection terminal

This terminal is used for the address selection. It is short to ground in this unit.

pin (17) : IIC bus clock from microprocessor.

pin (18) : IIC bus data from microprocessor.

### B) VIDEO CIRCUIT

The video circuit consists of the following parts:

#### 1) C/Ku switching

The base band output of the tuner is provided to the amplifier which has non-inverted and inverted output (Q108). The two signals are selected by CPU via D101, D102 and Q109.

#### 2) Base band amplifier

The amplifier makes the level of base band output 2 Vp-p and drives into 75 Ohm load.

#### 3) De-emphasis circuit

The high frequency section of the tuner base band output is emphasized. The de-emphasis circuit makes the frequency response of this signal flat. It consists of a series resistor R141 and R142, C121 which connect to ground.

The PAL/NTSC de-emphasis circuit are different, they are selected by CPU via Q113, Q114.

#### 4) Lowpass filter

The lowpass filter rejects the audio sub carriers locating upper frequency of the video band. The cutoff frequency of the PAL is 5.8 MHz. and the cutoff frequency of the NTSC filter is 4.8 MHz (option).

#### 5) PAL/NTSC switching(option)

The de-emphasis circuits and lowpass filters with PAL and NTSC are selected by CPU via Q116, D110, D111.

5) DNR circuit

The stereo audio signal will pass through a DNR circuit, this circuit can change the amplifier bandwidth to match the input signal bandwidth, if the frequency of input signal is high then the bandwidth will be changed to wider, if the frequency is low then the bandwidth will become narrow. The final result is a noise reduction effect, it is done by the IC U302.

6) Audio source selection circuit

The CPU can select the stereo pair signal or the mono audio or one of the stereo pair through an analog switch IC 305. The outputs are provided to the output buffer amplifier which has 6dB gain.

The another analog switch U203 is used to select the different audio source and provide to the SCART and RCA jack similar to the video selector.

D) Microprocessor section

1) Reset circuit

The reset circuit Q407, Q406 can generate a sharp reset pulses when the +5V supply is lower than 4.5 V.

2) 4 MHz oscillator

The CPU (U401) and Audio tuning IC (U301) share the 4 MHz crystal oscillator through an emitter follower Q408. It is used to generate a timer for the CPU and a reference frequency for the audio tuning PLL.

3) EEPROM channel memory

U402 is a EEPROM which is used to memorize the program setup and the global setting.

4) IR receiver and LED display

The IR signal is received by a receive module IR701, it changes the IR signal to a serial 5 V pulse and provides it to the CPU.

The LED display works as a scan mode operation. The three transistors Q701, Q702, Q703 are used to control the three 7-segments LED on and off.

5) LNB power control and band control circuit

There is a short circuit protection circuit for the LNB power supply, CPU monitors the LNB through a zener diode Z405 and a resistor R420. When the LNB power supply is lower than 12.5V, CPU will switch off the LNB power via J403 pin 2 to protect the power supply circuit. The LNB band control is done by a 22 KHz pulse generator, The 22 KHz tone is generated from Q411 and Q412, transistors Q413, Q414, Q415 drive that 22 KHz tone into the LNB supply line.

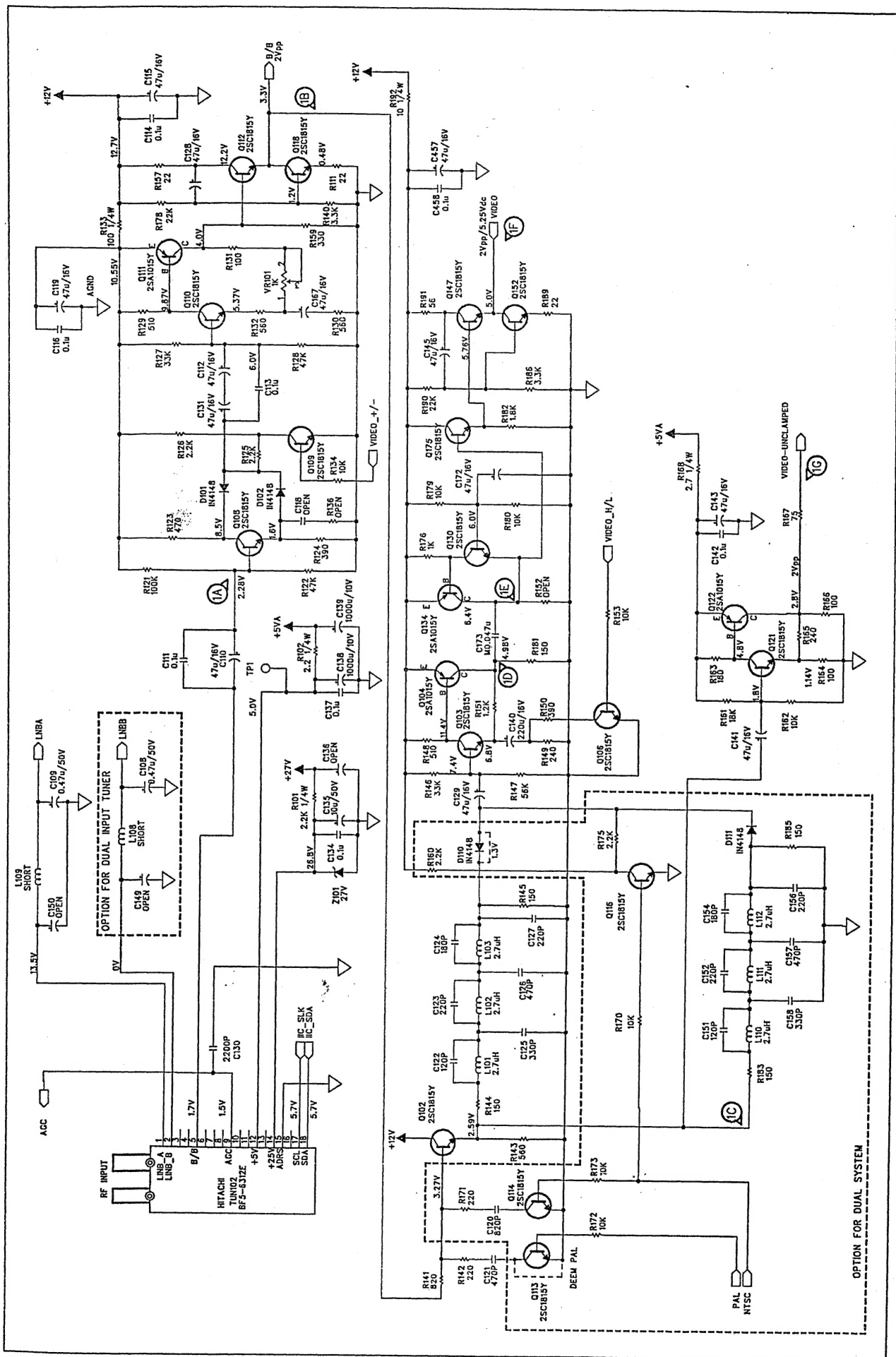
E) POWER SUPPLY CIRCUIT

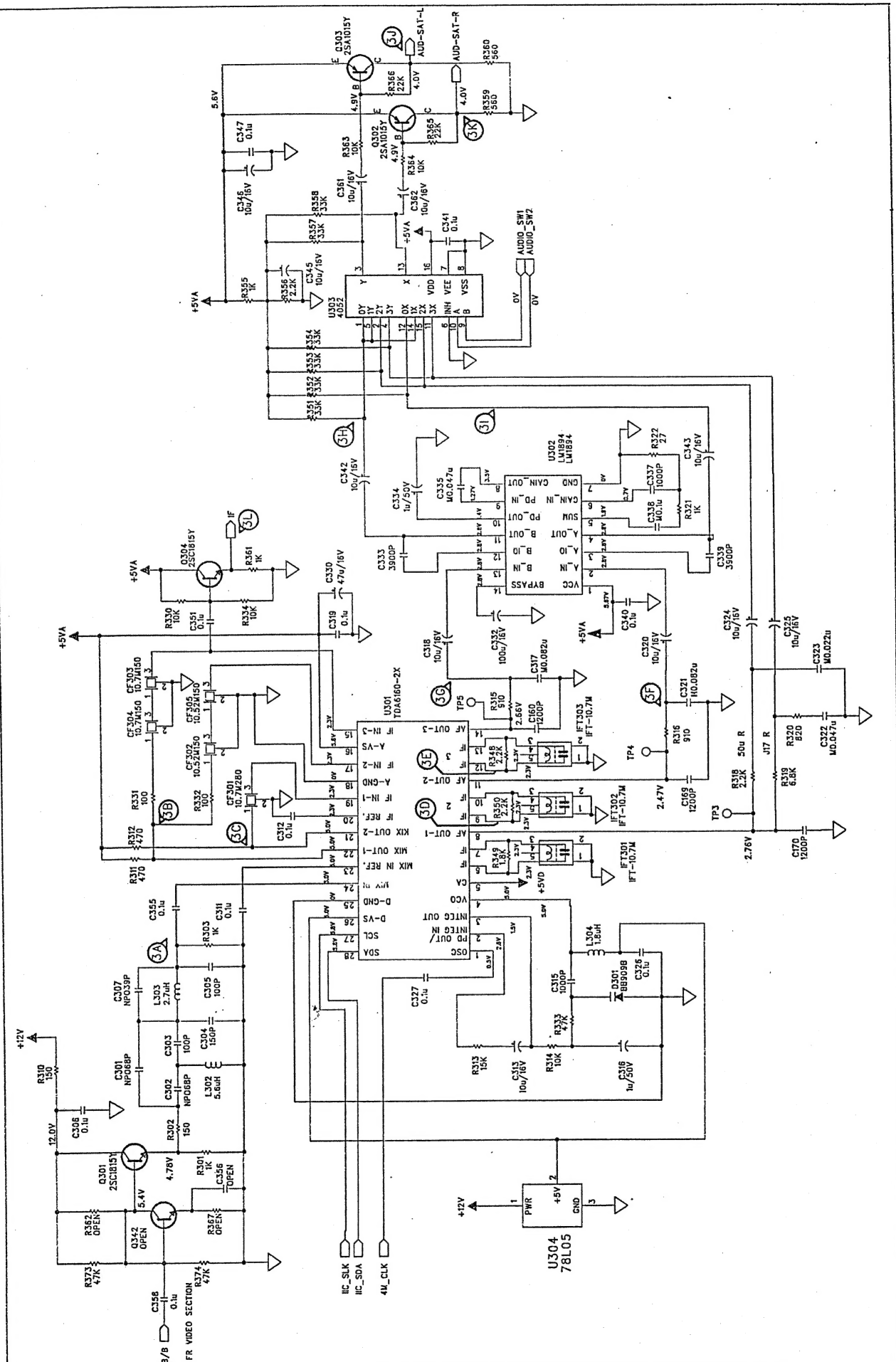
1) PWM controller

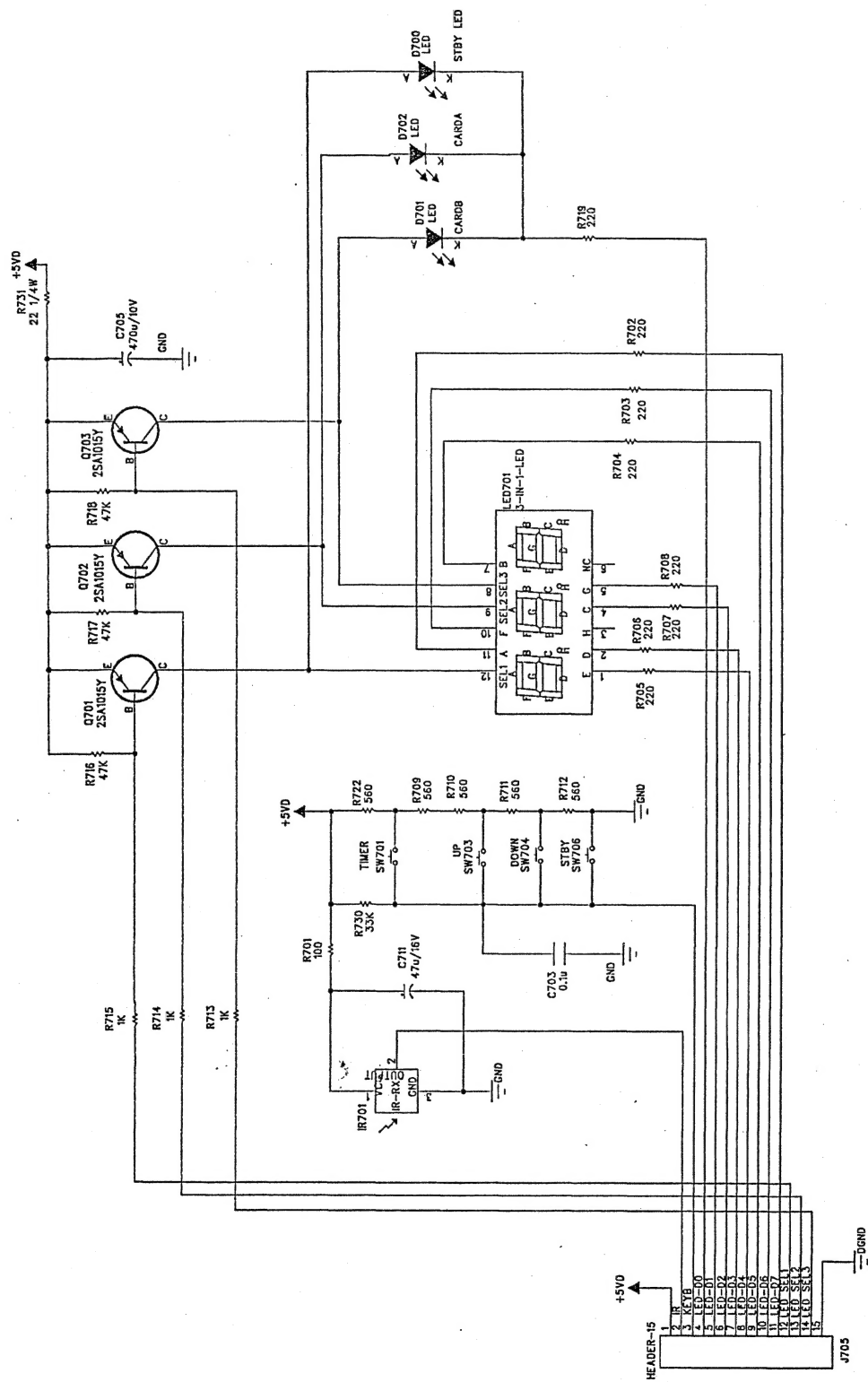
The switch mode power supply is running at 60 KHz, PWM controller U801 monitors the +5V output voltage through a voltage reference IC U803, and an opto coupler U802, it changes the switching pulse width which drives the base of the switching transistor Q801 to control the output voltage.

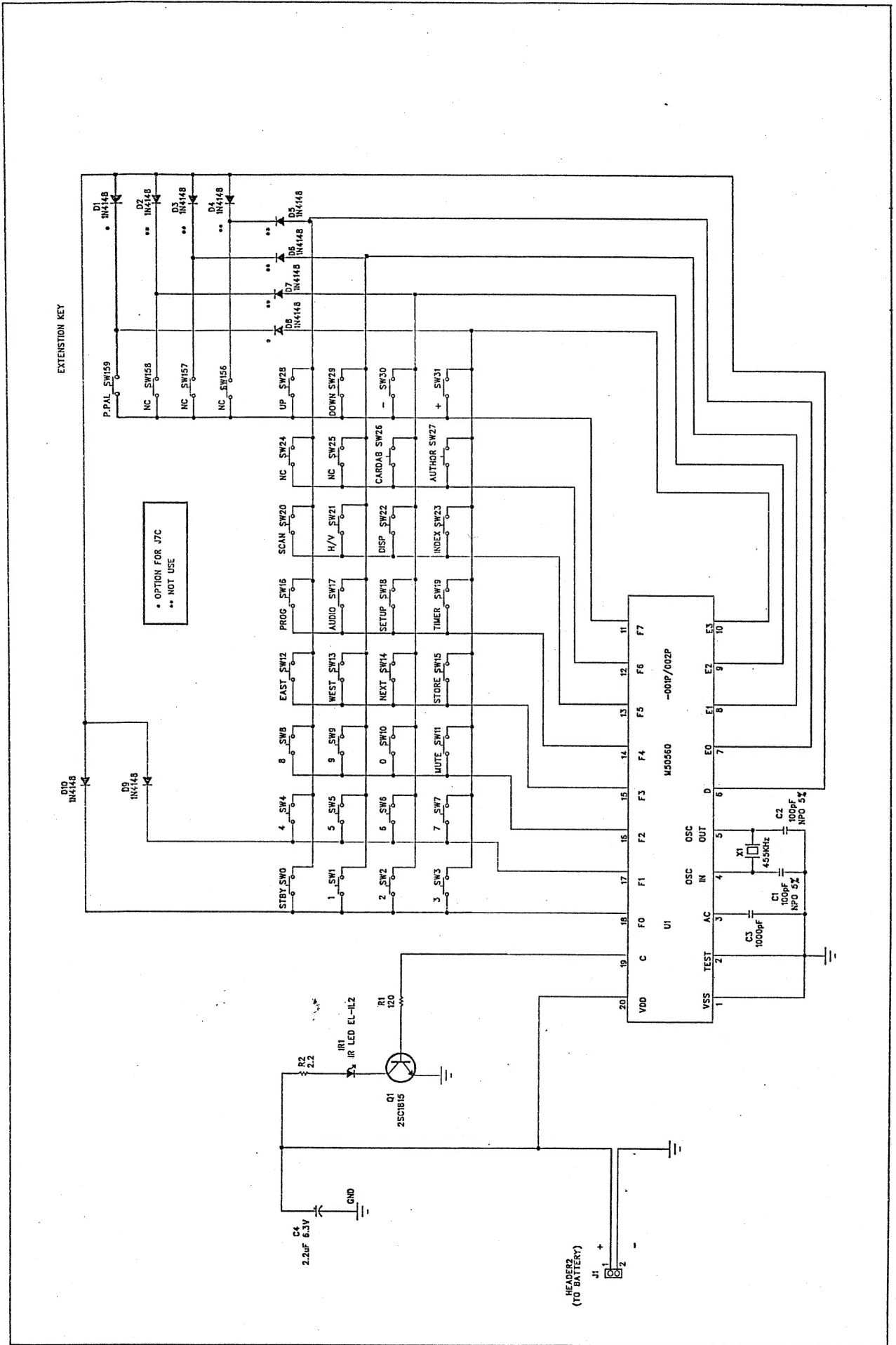
2) 13/17V 2nd converter

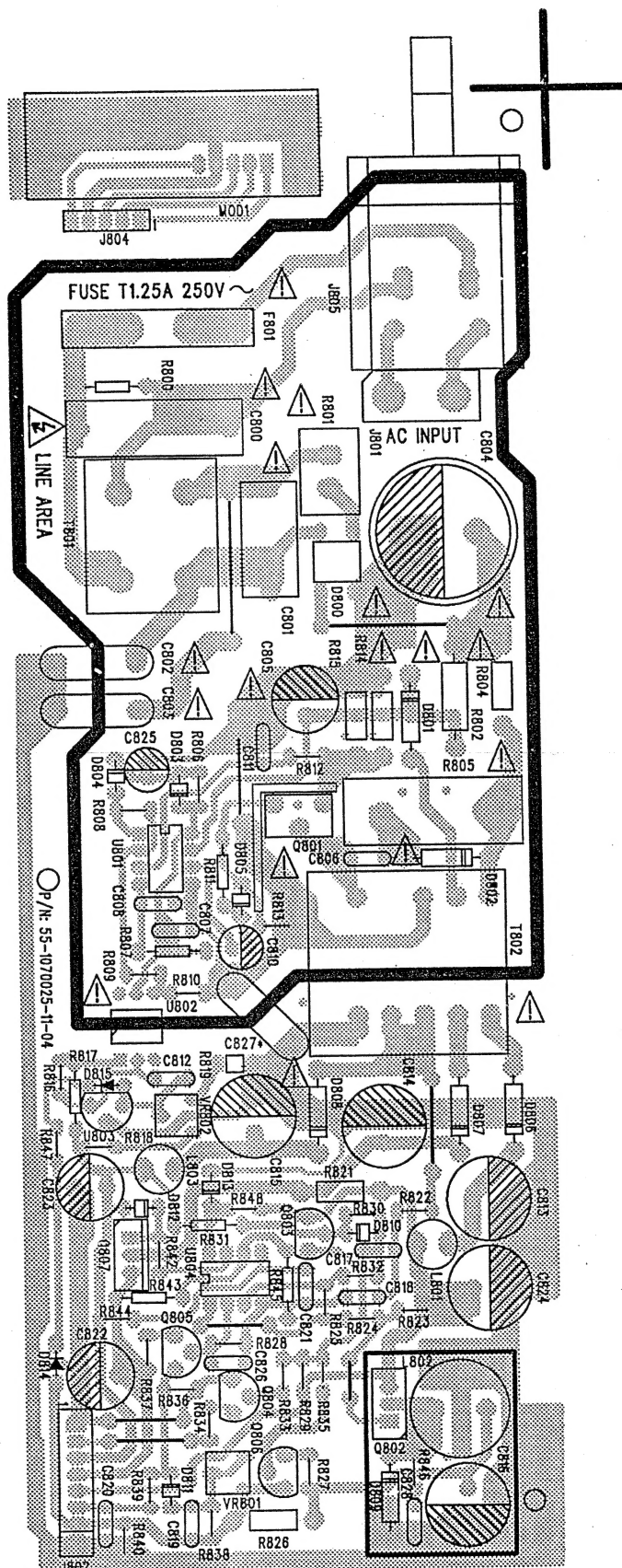
A step down converter consists of Q802, L802, D809 and C816 is used to generate a 13 or 17 V dc power supply. 13V or 17V output is controlled through J802 pin 6. This part of circuit can be switched off by the CPU via J802 pin 2.





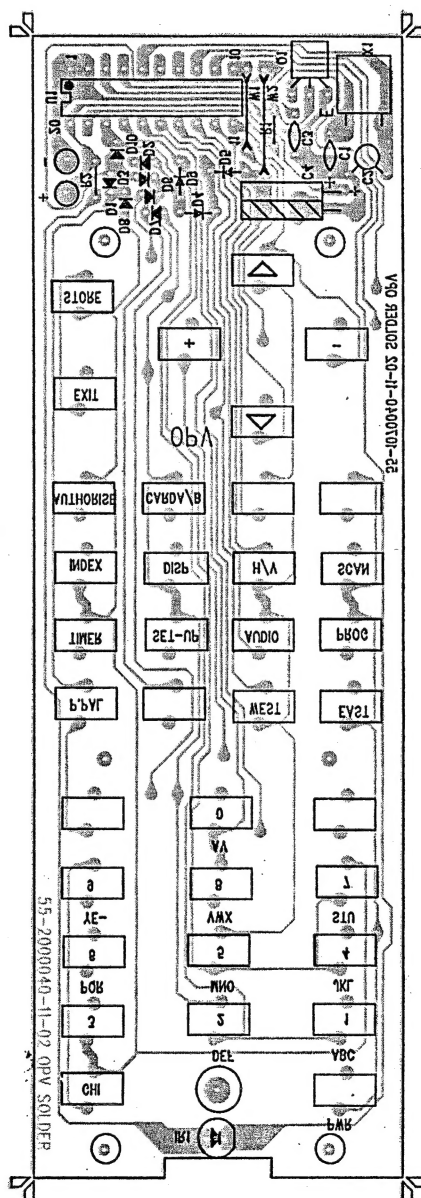






WARNING : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE  
REPLACE ONLY WITH THE SAME TYPE AND RATING OF FUSE.





## ALIGNMENT PROCEDURE

### I) General Adjustments:

- 1) +5V adjustment
- 2) +17V adjustment
- 3) OSD 17.734475 MHz adjustment
- 4) OSD position adjustment
- 5) Video level adjustment
- 6) Audio IF adjustment

### II) Recommend equipment:

- 1) Digital voltage meter
- 2) PAL vector scope
- 3) PAL, NTSC color TV
- 4) Audio IF 10.7MHz, 10.52MHz sweep generator
- 5) Wide screen monitor
- 6) 60MHz oscilloscope

### III) Alignment procedure

#### 1) +5V adjustment:

- a) Power on the unit
- b) Measure tuner pin 12 with the DVM
- c) Adjust power supply board VR802 to get a  $+5 \pm 0.05V$  reading

#### 2) +17V adjustment:

- a) Power on the unit
- b) Measure tuner F plug output voltage with DVM
- c) Set the LNB BAND to high
- d) Set the polarization to both HOR and VER
- e) Adjust power supply board VR801 to get HOR :  $+17V \pm 0.5V$ , VER :  $+13V \pm 0.5V$

#### 3) OSD 17.734475 MHz adjustment

- a) Power on the unit
- b) Connect the vector scope to the scart TV video output pin 19
- c) Adjust VC202 until the vector display stop rotate and the PAL LED indicator is on

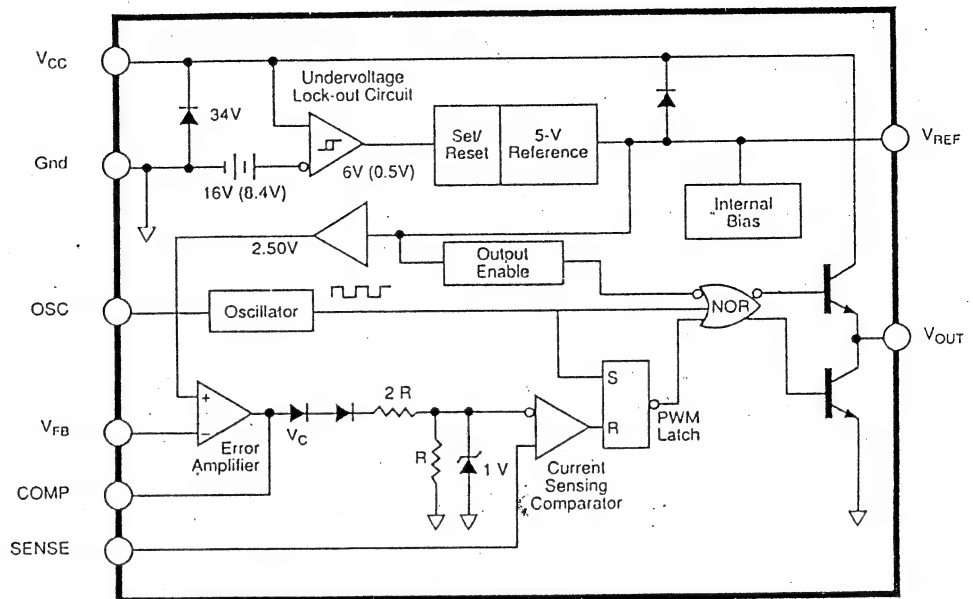
#### 4) OSD position adjustment

- a) power on the unit
- b) Connect a color TV monitor to the scart TV video output pin 19
- c) Press remote control "AUDIO" key to switch on Audio menu
- d) Adjust VC201 to align the OSD center position

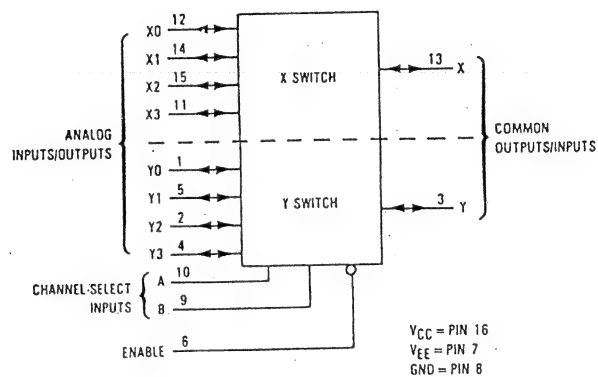
#### 5) Video level adjustment

- a) Power on the unit
- b) Connect a satellite IF signal (16MHz dev, PAL, positive)
- c) Select a pre-set channel (video high, positive)
- d) Connect a oscilloscope to the scart TV video output pin 19
- e) Adjust to a 2Vp-p video level (75% color bar)

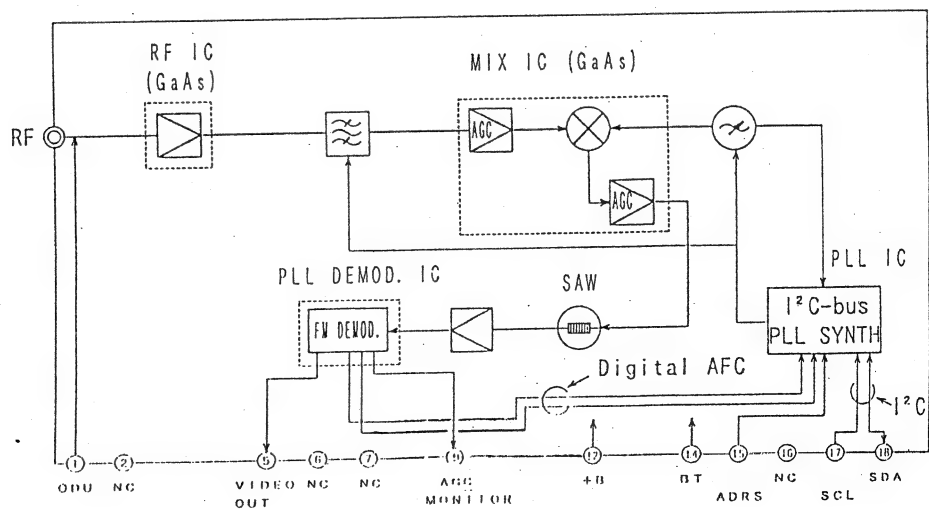
# BLOCK DIAGRAM



CS3842A

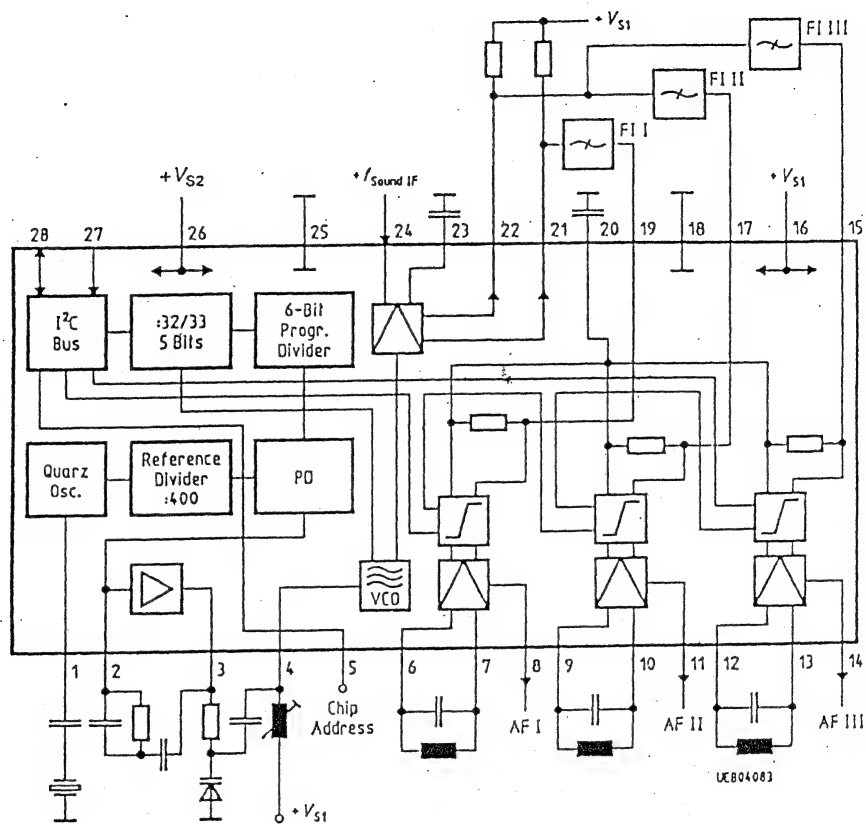


CD4052

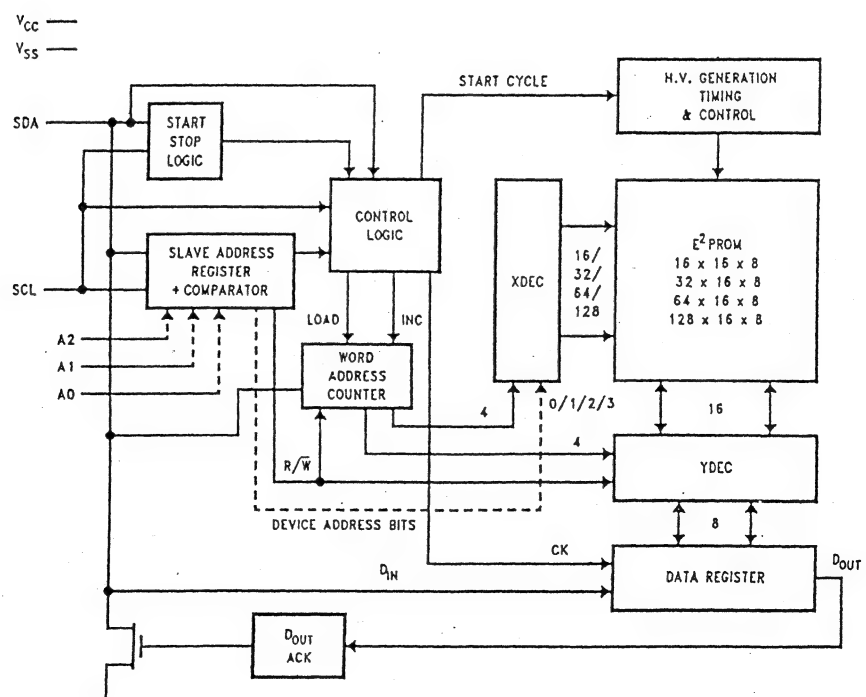


TUNER BF5-6312E

# BLOCK DIAGRAM



TDA6160-2X



NM24C16

## B) VIDEO CIRCUIT

### (1) No scart TV video output

Connect the tuner IF input, and Select a correct channel to receive a video signal.

Check the +5V supply at U202 pin 7, pin 20

Check the +12V supply at U201 pin 7, both side of R133, R192.

#### (a) Check blue background and OSD

No good, check U202 and IIC bus

OK, do the next step.

#### (b) Check scart VCR pin 19 and U201 pin 1 video signal 2Vp-p.

OK, check HOR(15.625KHz at PAL), VER(50 Hz at PAL)sync. signal at U202 pin 18, 19

No good, do the next.

#### (c) Check scart DECODER pin 19 and Q147 emitter video signal 2Vp-p.

OK, check U201

No good, do the next

#### (d) Check Q104 collector unclamp video signal 2Vp-p.

OK, check C173, Q134, Q130, Q175, Q147.

No good, do the next

#### (e) Check scart DECODER pin 12 and Q112 emitter base band signal 2Vp-p.

OK, check R141, Q102, PAL/NTSC lowpass filter, Q103, Q104.

No good, do the next.

#### (f) Check tuner pin 5 base band signal 1Vp-p.

OK, Check Q108, D101, D102, Q109, Q110, Q111.

No good, Check tuner pin 17&18 IIC bus, tuner.

#### (g) Check any open or short circuit on the main PCB.

### (2) No scart DECODER pin 10 de-emphasized base band output

#### (a) Check Q121, Q122.

#### (b) Follow the instructions (1) start from (d).

### (3) No VCR or DECODER video loop through, check U201 and any open or short circuit.

### (4) No modulator output.

#### (a) Check J201 pin 3, 5 power supply (+5Vdc) at power on mode.

No good, Check Q213, and CPU control circuit.

OK, do the next.

#### (b) Check J201 pin 1 video output 1Vp-p.

No good, Check Video circuit follow the instruction (1).

OK, Replace the modulator.

#### D) CPU CONTROL CIRCUIT

- (1) Front panel control no response.
  - (a) Check +5V supply of CPU pin 32.
  - (b) Check CPU pin 5 voltage, when the on button is pressed, it should be 0 Vdc.
  - (c) Check the reset pin 45, 5.8Vdc
  - (d) Check crystal oscillator XL401, 4MHz
  - (e) Check any open or short circuit of the CPU part.
- (2) Remote control no response.
  - (a) Check +5V supply of the IR receiver IR701.
  - (b) Check the IR pulse input of the CPU pin 4.
  - (c) following the instruction (1) start at a).
- (3) Without signal level meter or Auto scan fail.
  - (a) Check tuner AGC output pin 9, the voltage will change higher when you disconnect the IF input. if fail, check or replace tuner.
  - (b) Check CPU AGC input pin 7 on the same way as (a), if fail, check the inter connection between tuner and CPU.
  - (c) Check CPU AFC input pin 6, the voltage will change between 0 and 5 V during auto-scan. if fail check U101A.
  - (d) Check any open or short circuit on the CPU part.
- (4) LED display abnormal.
  - (a) Check Q701, 702, 703.
  - (b) Check or replace LED module LED701.
- (5) LNB band switch no action.
  - (a) Switch LNB band to high, check Q412 emitter (22KHz)
  - (b) Check Q413, D403

## J7E TESTING PROCEDURE

### I) J7E testing

- 1) Power supply board testing
- 2) Remote control testing
- 3) Front panel board testing
- 4) Main chassis testing

### II) J7E testing equipment

- 1) 60MHz oscilloscope
- 2) Satellite IF 950-2050 signal with selectable audio pair
- 3) TV PAL NTSC pattern generator with RF output from 47MHz to 854MHz
- 4) Multisystem color TV with scart input
- 5) RF step attenuator 950 - 2050MHz
- 6) Digital voltage meter
- 7) Vector scope

### III) J7E testing procedure

#### 1) Power supply board testing

##### A) Output voltage range testing:

a) Connect the DVM to power supply board J802

b) Connect a resistor load to J802

pin 3	5.1 ohm	10W
pin 4	18 ohm	10W
pin 5	220 ohm	10W
pin 7	56 ohm	10W

c) Check the output reading should be:

Pin No. of J802	Pin name	output/conditions			
pin 1	GND	0V	0V	0V	0V
pin 2	Power on/off	high	low	low	low
pin 3	+5V	+5.7V +/- 0.1V	+5.7V +/- 0.1V	+5.7V +/- 0.1V	+5.7V +/- 0.1V
pin 4	+12V	+12.7V +/- 0.2V	+12.7V +/- 0.2V	+12.7V +/- 0.2V	+12.7V +/- 0.2V
pin 5	+33V	+33V +/- 0.5V	+33V +/- 0.5V	+33V +/- 0.5V	+33V +/- 0.5V
pin 6	LNB control	low	low	high	high
pin 7	+13/17V	0V	+/- 0.5V	+13.7V +/- 0.1V	+17.7V +/- 0.5V
pin 8	NC	0V	0V	0V	0V

#### D) Audio output testing

- Do the same setup as A) & B)
- Select a pre-set channel with audio setup: (ST, 8.10, 8.28, N, P1)
- Check all audio output level  $>500\text{mV}$  and distortion  $<1\%$  on 10 kohm load
  - Scart VCR pin 1, 3
  - Scart TV pin 1, 3
  - Scart Decoder pin 1, 3
  - RCA jack output L, R

#### E) Audio switch, tune range and de emphasis testing

- Do the same setup as A) & B)
- Change audio setup and check output level
 

Input signal	Setting	Output signal	Output level mV
7.38, 7.56 / 1K, 1K, +/-50KHz	(M, 7.38, N, P1)	L=1KHz, R=1KHz	mV
5.80, 9.00 / 1K, 8KHz +/- 85KHz	(M, 5.80, W, 50)	L=3.2KHz, R=3.2KHz	mV
5.80, 9.00 / 1K, 8KHz +/- 85KHz	(M, 9.00, W, J17)	L=8KHz, R=8KHz	mV

#### F) Scart function testing

- Check scart TV pin 8
  - Stand-by mode, low = 0V
  - Operation mode, high=+12V +/- 1V, on 10 Kohm load
- Check scart VCR pin 8
  - Both AV will be loop though in the VCR loop though mode
  - input = high, VCR loop though mode
  - input = low, exit VCR loop though mode
- Check scart decoder pin 8
  - Decoder loop though (both AV, V only, A only)
  - input = high, Decoder loop though mode
  - input = low, exit Decoder loop though mode
  - notice: If decoder type set to V only, then only the video will be loop though
  - If decoder type set to both AV, the both AV will be loop though

#### G) Modulator testing

- Switch to stand-by mode
- Connect a TV pattern gen. RF output to ANT input socket
- Connect a Color TV to TV output socket
- Check three point of RF loop though
  - 47MHz, 474MHz, 854MHz
- Switch to operation mode
- Check the test signal by switch on the test switch
- Switch off test sw., Check modulated output on TV
- Switch to stand-by mode again, the modulated output will be disappeared

#### H) AGC and auto-search testing

- Connect a IF input signal to tuner though a step attenuator
- Switch unit into signal level meter mode by remote control
- Use step attenuator to set the signal level
- Check the signal level meter movement
- Switch to auto-search mode
- Check auto-search up and down by the +/- keys



ITEM	LOCATION	LEVEL	SA	SC	PART NO.	PART DESC.	MANUFACT.	QTY	UNIT
1	UD04			X	A	27-3000501-07-04	I.C. REG LM78L05 5V/0.1A TO-42 LM78L05ACE	NS	1
2		3		P		10-0070062-71-20	CHANNEL KNOB J7E ABS SPRAY BLK R.2.0 (UP/DOWN)		1
3		3		P		62-7200001-00-00	BACK LABEL J7E BLACK (70 X 30mm)		1
4		3		X	P	13-0301004-04-00	SELF TAPING SCREW Y3 X 10 KH TYPE "A" BLK PLT	TEO CHEOW SENG	1
5		3		P		12-0070255-70-00	CUT SHEET J7E PVC 54 X 90mm BLK BLANK		1
6		3		P		10-0070024-01-00	BOTTOM CABINET J7E ABS BLK R.0.0		1
7		3		X	P	14-0300600-02-00	MACHINE SCREWM3 X 6 PH N PLT	TEO CHEOW SENG/MELCO	1
8		3		P		10-0070041-04-10	FRONT LENS J7E ACRYLIC GREEN R.1.0		1
9		3		X	P	13-0300803-04-00	SELF TAPING SCREW Y3 X 8 BH TYPE "A" BLK PLT	TEO CHEOW SENG	1
10		3		P		17-1181270-40-21	BUSHING 11.8 X 12.7mm 4.0mm TH-K BLK NYLON		1
11		3		P		65-1070040-31-04	PCB REMOTE BOARD J7 CF FR2 1.6mm R.1.1		1
12		3				80-0000707-00-00	PCB ASSY J7E REV.0 MAIN BOARD		1
13		3		P		17-0981280-04-22	FOOTPAD Y12.8 X 3.5 mm BLK RUBBER		1
14		3		P		10-0070072-71-10	TIMER KNOB J7E ABS SPRAY BLK R.1.0		1
15		3		P		17-0981280-04-22	FOOTPAD Y12.8 X 3.5 mm BLK RUBBER		1
16		3				80-0000707-00-02	PCB ASSY J7E REV.0 FRONT PANEL BOARD		1
17		3		X	P	36-0245650-00-52	STRANDED WIRE #24 L=65mm BLACK TIN LEAD UL1007	STAR WORLD	1
18		3		P		17-0981280-04-22	FOOTPAD Y12.8 X 3.5 mm BLK RUBBER		1
19		3		X	P	36-0240650-00-52	STRANDED WIRE #24 L=65mm RED TIN LEAD UL1007	STAR WORLD	1
20		3		X	P	13-0300803-04-00	SELF TAPING SCREW Y3 X 8 BH TYPE "A" BLK PLT	TEO CHEOW SENG	1
21		3		P		17-0981280-04-22	FOOTPAD Y12.8 X 3.5 mm BLK RUBBER		1
22		3		P		10-0070062-71-10	STANDBY KNOB J7E ABS SPRAY BLK R.1.0		1
23		3		P		10-0070030-71-10	FRONT PANEL J7E ABS SPRAY BLK R.1.0		1
24		3		X	P	13-0300803-04-00	SELF TAPING SCREW Y3 X 8 BH TYPE "A" BLK PLT	TEO CHEOW SENG	1
25		3				80-0000707-00-01	PCB ASSY J7E REV.0 POWER SUPPLY BOARD		1
26		3		P		10-0070057-71-00	BLANK PLATE J7E ABS SPRAY BLK R.0.0		1
27		3		X	P	13-0301004-04-00	SELF TAPING SCREW Y3 X 10 KH TYPE "A" BLK PLT	TEO CHEOW SENG	1
28	BTM CABINET	3		X	P	13-0301004-04-00	SELF TAPING SCREW Y3 X 10 KH TYPE "A" BLK PLT	TEO CHEOW SENG	1
29	C1	3		X	P	22-1101150-01-10	CAP CER CCU08 100pF 50V 10% NPO RAD ST5 BULK CCU08NPO101KL	GLIDING	1
30	C1	3		X	A	22-1101150-01-24	CAP CER TC 100pF 50V ±10% NPO RAD ST2.5 BULK TCNPO100K502	BIL	1
31	C2	3		X	P	22-1101150-01-10	CAP CER CCU08 100pF 50V 10% NPO RAD ST5 BULK CCU08NPO101KL	GLIDING	1
32	C2	3		X	A	22-1101150-01-24	CAP CER TC 100pF 50V ±10% NPO RAD ST2.5 BULK TCNPO100K502	BIL	1
33	C3	3		X	P	22-1102150-03-11	CAP CER CKU08 1000PF 10% 50V Y5E RAD ST5CKU08Y5E102KL45AE	GLIDING	1
34	C3	3		X	A	22-1102150-09-01	CAP CER CCU05 1nF 10% 50V SL RAD ST5 BULK CCU05SL102KL45AE	GLIDING	1
35	C3	3		X	A	22-1102150-17-23	CAP CER H1K 1000pF 50V ±10% B RAD ST2.5 BULK H1KB102K502	BIL	1
36	C4	3		X	P	22-3470022-00-08	CAP ELEC SM 47µF 16V ±20% 85°C VER BULK	YEC	1
37	D10	3		X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
38	D10	3		X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
39	D10	3		X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
40	D9	3		X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
41	D9	3		X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
42	D9	3		X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
43	FP BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	FP BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	FP BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	FP BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	FP BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	FP BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
44	FP CABINET	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	FP CABINET	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	FP CABINET	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	FP CABINET	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	FP CABINET	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	FP CABINET	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
45	IR1	3		X	P	26-1941005-00-00	IRTX 940nm 05 x10mm BULK EL-1L2	KODENSHI	1
46	MAIN BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	MAIN BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	MAIN BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	MAIN BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	MAIN BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
47	POWER BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	POWER BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG	1
	POWER BD	3		X	P	13-0301000-02-00	SELF TAPING SCREW Y3 X 10 PH TYPE "A" N PLT	TEO CHEOW SENG/MELCO	1
48	Q1	3		X	P	21-0000060-00-01	XTR S.S BC337 NPN HFE 250 100M T092 BULK BC337-25	ITT	1
49	R1	3		X	P	23-0121200-00-00	RES CF 120 OHM 5% 1/8W AXIAL BULK	ANY	1
50	R2	3		X	P	23-0229200-00-00	RES CF 2.2 OHM 1/8W 5% BULK AXIAL	ANY	1
51	RCA JACK	3		X	P	13-0301004-04-00	SELF TAPING SCREW Y3 X 10 KH TYPE "A" BLK PLT	TEO CHEOW SENG	1
52	TOP CABINET	3		X	P	13-0300803-04-00	SELF TAPING SCREW Y3 X 8 BH TYPE "A" BLK PLT	TEO CHEOW SENG	1
53	U1	3		X	P	27-9505600-00-01	IC REMOTE 4BIT 33KEY M50560-001P	MTSUBISHI	1
54	X1	3		X	A	28-4045100-01-14	RESONATOR 455KHz ±0.3% POE-455B	FLUX CERAMICS	1
55	X1	3		X	P	28-4045100-01-03	RESONATOR 455KHz ±2KHz PRF-0455DBSAF	KDS	1
56		2		X	P	19-0070014-23-10	OVERLAY REMOTE J7E LEXAN 4-C 1-ADH R.0.0 BINATONE	FOUNTAIN	1
57		2		X	P	37-0020200-00-63	BATTERY CARBON ZINC AAA 1.5 GR03X	GOLDEN POWER	1
58		2		P		10-0070154-01-00	REMOTE CABINET BOTTOM J7E ABS R.0.0		1
59		2		P		11-0070117-20-00	BATTERY CONTACT (+) J7E BASS R.0.0		1
60		2		P		11-0070127-20-00	BATTERY CONTACT (-) J7E BASS R.0.0		1
61		2		P		11-0070137-20-00	BATTERY CONTACT (+/-) J7E BASS R.0.0		1
62		2		P		10-0070161-01-00	REMOTE BATTERY DOOR J7E ABS R.0.0		1
63		2		X	P	12-0070240-70-00	SPONGE J7E 40 X 20 X 10mm	WING FUNG/TAK LEE	1
64		2		P		18-0070036-12-00	RUBBER KEY PAD J7E 36KEYS 2-C R.0.0		1
65		2		P		85-0000707-00-00	CHASSIS ASSY J7E REV.0 BOTTOM CASE (ES2000 BINATONE)		1
66		2		P		10-0070013-01-00	TOP CABINET J7E ABS BLK R.0.0		1
67		2		P		10-0070171-03-00	REMOTE LENS J7E ACRYLIC RED R.0.0		1
68		2		P		10-0070143-01-10	REMOTE CABINET TOP J7E ABS R.1.0		1
69		2		X	P	37-0020200-00-63	BATTERY CARBON ZINC AAA 1.5 GR03X	GOLDEN POWER	1
70		2		P		62-7000702-30-07	REMOTE BACK LABEL J7E BLACK (24 X 40mm)		1
71		2				80-0000707-00-04	PCB ASSY J7 REMOTE BD		1
72		2				85-0000707-00-01	CHASSIS ASSY J7E REV.0 FRONT PANEL (ES2000 BINATONE)		1
73	REMOTE BD	2		P		13-0200600-02-00	SELF TAPING SCREW Y2 X 6 PH TAPE "A" N PLT	TEO CHEOW SENG/MELCO	1
	REMOTE BD	2		P		13-0200600-02-00	SELF TAPING SCREW Y2 X 6 PH TAPE "A" N PLT	TEO CHEOW SENG	1

164	C141	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
165	C141	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
166	C141	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
167	C142	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CG08Z50104KL45CE	GLDING	1
168	C142	4	X	A	22-1104160-31-23	CAP CER H-K 0.1uF 50V +80-20% Z5VIF RAD ST7.5 BULK H-KF104M507	BIL	1
169	C142	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLDING	1
170	C143	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
171	C143	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
172	C143	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
173	C145	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
174	C145	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
175	C145	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
176	C160	4	X	P	22-1122150-30-13	CAP CER CKU08 1200pF ±10% 50V Y5E RAD ST6 BULK CKU08Y5E12	GLDING	1
177	C160	4	X	A	22-1122150-17-23	CAP CER H-K 1200pF 50V ±10% B RAD ST2.5 BULK H-KB122K502	BIL	1
178	C167	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
179	C167	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
180	C167	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
181	C169	4	X	A	22-1122150-17-23	CAP CER H-K 1200pF 50V ±10% B RAD ST2.5 BULK H-KB122K502	BIL	1
182	C169	4	X	P	22-1122150-30-13	CAP CER CKU08 1200pF ±10% 50V Y5E RAD ST6 BULK CKU08Y5E12	GLDING	1
183	C170	4	X	A	22-1122150-17-23	CAP CER CKU08 1200pF ±10% 50V Y5E RAD ST5 BULK CKU08Y5E12	GLDING	1
184	C172	4	X	A	22-3470022-00-19	CAP CER H-K 1200pF 50V ±10% B RAD ST2.5 BULK H-KB122K502	BIL	1
185	C172	4	X	P	22-3470022-00-08	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
186	C172	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
187	C173	4	X	P	22-4147303-10-10	CAP MYLAR KT-G 0.047uF 100V 10% RAD ST6.5 BULK	HYOCHUN	1
188	C173	4	X	A	22-4147303-10-17	CAP MYLAR CQB2M 47nF 100V 10% RAD BULK	DAEHUNG	1
189	C173	4	X	A	22-4147303-10-10	CAP MYLAR KT-G 47nF 50V 5% RAD ST5 BULK KT-G473K50V	HYOCHUN	1
190	C200	4	X	P	22-3221022-00-08	CAP ELEC SM 220uF 16V 20% VER BULK	YEC	1
191	C200	4	X	A	22-3221022-00-02	CAP ELEC SM 220uF 16V 20% RAD ST2.5 BULK SM1C221MXN0812	ELITE	1
192	C200	4	X	A	22-3221022-00-18	CAP ELEC KR1 220uF 16V ±20% RAD BULK KR1-16V221MC	KOSH-IN	1
193	C202	4	X	P	22-3106052-00-00	CAP ELEC GS 1uF 50V 20% RAD ST2.5 BULK GS010M050C110CX	CAPXON	1
194	C203	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLDING	1
195	C203	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CG08Z50104KL45CE	GLDING	1
196	C203	4	X	A	22-1104160-31-23	CAP CER H-K 0.1uF 50V +80-20% Z5VIF RAD ST7.5 BULK H-KF104M507	BIL	1
197	C204	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
198	C204	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
199	C204	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
200	C205	4	X	P	22-3106052-00-00	CAP ELEC GS 1uF 50V 20% RAD ST2.5 BULK GS010M050C110CX	CAPXON	1
201	C206	4	X	P	22-3106052-00-00	CAP ELEC GS 1uF 50V 20% RAD ST2.5 BULK GS010M050C110CX	CAPXON	1
202	C207	4	X	P	22-3477052-00-18	CAP ELEC KR1 0.47uF 50V 20% RAD ST6 BULK KR1-50VR47MA	KOSH-IN	1
203	C208	4	X	A	22-3477052-00-00	CAP ELEC GS 0.47uF 50V 20% RAD ST 2.5 BULK GS47M050C110CX	CAPXON	1
204	C208	4	X	P	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
205	C208	4	X	A	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
206	C210	4	X	P	22-3106052-00-00	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
207	C213	4	X	A	22-3470022-00-19	CAP ELEC GS 1uF 50V 20% RAD ST2.5 BULK GS010M050C110CX	CAPXON	1
208	C213	4	X	P	22-3470022-00-08	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
209	C213	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
210	C214	4	X	A	22-1104170-31-12	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
211	C214	4	X	P	22-1104160-28-18	CAP CER CKU14 0.1uF +80-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLDING	1
212	C214	4	X	A	22-1104160-31-23	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CG08Z50104KL45CE	GLDING	1
213	C215	4	X	A	22-1050150-01-24	CAP CER H-K 0.1uF 50V +80-20% Z5VIF RAD ST7.5 BULK H-KF104M507	BIL	1
214	C215	4	X	P	22-1050150-01-01	CAP CER TC 5pF 50V ±10% NPO RAD ST2.5 BULK TCNPO5R0K502	BIL	1
215	C216	4	X	A	22-1050150-01-24	CAP CER CCU05 5pF ±10% 50V 0.25P NPO RAD ST5 BULK CCU05NP	GLDING	1
216	C216	4	X	P	22-1050150-01-01	CAP CER TC 5pF 50V ±10% NPO RAD ST2.5 BULK TCNPO5R0K502	BIL	1
217	C217	4	X	P	22-1330150-01-01	CAP CER CCU05 5pF ±10% 50V 0.25P NPO RAD ST5 BULK CCU05NP	GLDING	1
218	C217	4	X	A	22-1330150-01-24	CAP CER CCU05 33P 50V 10% NPO RAD ST2.5 BULK CCU05NP0330KL05AE	GLDING	1
219	C218	4	X	P	22-1330150-01-01	CAP CER TC 33pF 50V ±10% NPO RAD ST2.5 BULK TCNPO330K502	BIL	1
220	C218	4	X	A	22-1330150-01-24	CAP CER TC 33pF 50V ±10% NPO RAD ST2.5 BULK TCNPO330K502	BIL	1
221	C219	4	X	P	22-3221022-00-08	CAP ELEC SM 220uF 16V 20% VER BULK	YEC	1
222	C219	4	X	A	22-3221022-00-02	CAP ELEC SM 220uF 16V 20% RAD ST2.5 BULK SM1C221MXN0812	ELITE	1
223	C219	4	X	A	22-3221022-00-18	CAP ELEC KR1 220uF 16V ±20% RAD BULK KR1-16V221MC	KOSH-IN	1
224	C220	4	X	P	22-3221022-00-08	CAP ELEC SM 220uF 16V 20% VER BULK	YEC	1
225	C220	4	X	A	22-3221022-00-18	CAP ELEC KR1 220uF 16V ±20% RAD BULK KR1-16V221MC	KOSH-IN	1
226	C220	4	X	A	22-3221022-00-02	CAP ELEC SM 220uF 16V 20% RAD ST2.5 BULK SM1C221MXN0812	ELITE	1
227	C221	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
228	C221	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
229	C221	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
230	C222	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
231	C222	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
232	C222	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
233	C223	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
234	C223	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
235	C224	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
236	C224	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
237	C224	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
238	C225	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
239	C225	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
240	C225	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
241	C226	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
242	C226	4	X	P	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
243	C227	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
244	C227	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
245	C228	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
246	C228	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
247	C228	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
248	C229	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
249	C229	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1

336	C325	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
337	C325	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXXN0511	ELITE	1
338	C325	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
339	C326	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
340	C326	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
341	C326	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
342	C327	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
343	C327	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
344	C327	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
345	C330	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
346	C330	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXXN0511CX	ELITE	1
347	C330	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
348	C332	4	X	A	22-3101022-00-02	CAP ELEC SM 100uF 16V ±20% RAD ST2.5 BULK SM1C101MXXN06311	ELITE	1
349	C332	4	X	P	22-3101022-00-00	CAP ELEC GS 100uF 16V 20% RAD ST5 BULK GS101M016E110CX	CAPXON	1
350	C332	4	X	A	22-3101022-00-18	CAP ELEC 100uF 16V 20% RAD BULK KR1-16V101MB	KOSH-IN	1
351	C332	4	X	A	22-3101022-00-08	CAP ELEC SM 100uF 16V ±20% 85°C VER BULK	YEC	1
352	C333	4	X	P	22-1392150-30-14	CAP CER CKU10 3900pF 10% 50V Y5E RAD ST5 BULK CKU10Y5E39	GLIDING	1
353	C333	4	X	A	22-1392150-17-23	CAP CER HIK 3900pF 50V ±10% B RAD ST5 BULK HIKB392K505	BIL	1
354	C334	4	X	P	22-3100052-00-00	CAP ELEC GS 1uF 50V 20% RAD ST2.5 BULK GS010M050C110CX	CAPXON	1
355	C335	4	X	P	22-1147303-10-10	CAP MYLAR KT-G 0.047uF 100V 10% RAD ST8.5 BULK	HYOCHUN	1
356	C335	4	X	A	22-1147301-10-10	CAP MYLAR KT-G 47nF 50V 5% RAD ST5 BULK KT-G473K50V	HYOCHUN	1
357	C335	4	X	A	22-1147303-10-17	CAP MYLAR CGB2M 47nF 100V 10% RAD BULK	DAEHUNG	1
358	C337	4	X	P	22-1102150-30-11	CAP CER CKU06 1000pF 10% 50V Y5E RAD ST5 CKU06Y5E102KL45AE	GLIDING	1
359	C337	4	X	A	22-1102150-17-23	CAP CER HIK 1000pF 50V ±10% B RAD ST2.5 BULK HIKB102K502	BIL	1
360	C338	4	X	A	22-1110403-10-17	CAP MYLAR CQ92M 0.1uF 100V 10% RAD BULK	DAEHUNG	1
361	C338	4	X	P	22-1110403-10-10	CAP MYLAR KT-G 0.1uF 100V 10% RAD 7.5 BULK KT-G104K100V	HYOCHUN	1
362	C339	4	X	P	22-1392150-30-14	CAP CER CKU10 3900pF 10% 50V Y5E RAD ST5 BULK CKU10Y5E39	GLIDING	1
363	C339	4	X	A	22-1392150-17-23	CAP CER HIK 3900pF 50V ±10% B RAD ST5 BULK HIKB392K505	BIL	1
364	C340	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
365	C340	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
366	C340	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
367	C341	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
368	C341	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
369	C341	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
370	C342	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
371	C342	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
372	C342	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXXN0511	ELITE	1
373	C343	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
374	C343	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
375	C343	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXXN0511	ELITE	1
376	C345	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
377	C345	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
378	C345	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXXN0511	ELITE	1
379	C355	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
380	C355	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
381	C355	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
382	C358	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
383	C358	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
384	C358	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
385	C361	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
386	C361	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
387	C361	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXXN0511	ELITE	1
388	C362	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
389	C362	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXXN0511	ELITE	1
390	C362	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
	C401	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
391	C401	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
392	C401	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXXN0511	ELITE	1
393	C402	4	X	A	22-1220150-01-24	CAP CER TC 22pF 50V ±10% NPO RAD ST2.5 BULK RCNPO220K502	BIL	1
394	C402	4	X	P	22-1220150-01-01	CAP CER CCU05 22pF 10% 50V NPO RAD ST2.5 BULK CCU05NPO22	GLIDING	1
	C403	4	X	P	22-1220150-01-01	CAP CER CCU05 22pF 10% 50V NPO RAD ST2.5 BULK CCU05NPO22	GLIDING	1
395	C403	4	X	A	22-1220150-01-24	CAP CER TC 22pF 50V ±10% NPO RAD ST2.5 BULK RCNPO220K502	BIL	1
396	C404	4	X	A	22-1030150-01-24	CAP CER TC 3pF 50V ±10% NPO RAD ST2.5 BULK TCNPO30K502	BIL	1
397	C404	4	X	P	22-1030150-01-01	CAP CER CCU05 3pF 10% 50V 0.25P NPO RAD ST5 BULK CCU05NPO030CL	GLIDING	1
398	C405	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
399	C405	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
400	C405	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
	C406	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
401	C406	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
402	C406	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
403	C407	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
404	C407	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
405	C407	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
406	C408	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
407	C408	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
408	C408	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
409	C409	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
410	C409	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
411	C409	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
412	C410	4	X	A	22-3470052-00-18	CAP ELEC 470uF 35V 20% RAD ST5 BULK	YEC	1
413	C410	4	X	P	22-3471042-00-00	CAP ELEC GS 470uF 35V 20% RAD ST5 BULK GS471M035G200CX	CAPXON	1
414	C412	4	X	P	22-1220150-01-01	CAP CER CCU05 22pF 10% 50V NPO RAD ST2.5 BULK CCU05NPO22	GLIDING	1
415	C412	4	X	A	22-1220150-01-24	CAP CER TC 22pF 50V ±10% NPO RAD ST2.5 BULK RCNPO220K502	BIL	1
416	C413	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
417	C413	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXXN0511CX	ELITE	1
418	C413	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
419	C420	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
420	C420	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
421	C420	4	X	A	22-1104160-31-23	CAP CER HIK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HIKF104M507	BIL	1
422	C422	4	X	A	22-4122403-10-17	CAP MYLAR CQ92M 220nF 100V 10% RAD ST8.5 BULK	DAEHUNG	1
423	C422	4	X	P	22-4122403-10-10	CAP MYLAR KT-G 220nF 100V 10% RAD 8 BULK KT-G224K100V	HYOCHUN	1

511	C821	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
512	C821	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104K45CE	GUIDING	1
513	C821	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
514	C822	4	X	P	22-3471022-00-00	CAP ELEC GS 470uF 16V 20% RAD ST6 BULK GS471M016G130CXC	CAPXON	1
515	C822	4	X	A	22-3471022-00-08	CAP ELEC SM 470uF 16V 20% 85°C VER BULK	YEC	1
516	C823	4	X	P	22-3471022-00-00	CAP ELEC GS 470uF 16V 20% RAD ST5 BULK GS471M016G130CXC	CAPXON	1
517	C823	4	X	A	22-3471022-00-08	CAP ELEC SM 470uF 16V 20% 85°C VER BULK	YEC	1
518	C824	4	X	P	22-3471042-30-14	CAP ELEC RX 470uF 35V 20% RAD BULK 2RX1V-B477MCS10030	SAM-WA	1
519	C824	4	X	A	22-3471042-30-21	CAP ELEC RSG 470uF 35V ±20% RAD 105°C BULK RSG-35V471M555	ELNA	1
520	C825	4	X	A	22-3106052-00-18	CAP ELEC KR1 1uF 50V 20% RAD BULK KR1-50V010MA	KOSHIN	1
521	C826	4	X	P	22-3106052-00-00	CAP ELEC GS 1uF 50V 20% RAD ST2.5 BULK GS010M050C110CXC	CAPXON	1
522	C826	4	X	P	22-1220150-01-24	CAP CER TC 22pF ±10% 50V NPO RAD ST5 BULK TCNPO220K505	BIL	1
523	C827	4	X	P	22-1222460-21-00	CAP CER KC 2200PF 400VAC ±20% F RAD ST7.5 BULK DE7100F222MVA1	MURATA	1
524	C828	4	X	A	22-1102150-09-01	CAP CER CCU05 1nF 10% 50V SL RAD ST5 BULK CCU05SL102KL45AE	GUIDING	1
525	C828	4	X	A	22-1102150-17-23	CAP CER HK 1000pF 50V ±10% B RAD ST2.5 BULK HKB102K502	BIL	1
526	C828	4	X	P	22-1102150-30-11	CAP CER CKU06 1000PF 10% 50V Y5E RAD ST5CKU06Y5E102KL45AE	GUIDING	1
527	CF301	4	X	A	28-0107210-01-17	CER FIL CFSK107M1 280 ±50K±5 SK107M1-A0-10	TOKO	1
528	CF301	4	X	P	28-0107210-01-01	CER FIL SFE10.7M 280K±5 SFE10.7MA5	MURATA	1
529	CF302	4	X	A	28-0105200-00-17	CER FIL CFSK105M4 150 ±40K±5 SK1052M4-A0-20X	TOKO	1
530	CF302	4	X	P	28-0105200-00-01	CER FIL SFE10.52M SFE10.52MA10	MURATA	1
531	CF303	4	X	A	28-0107200-00-17	CER FIL CFSK107M4 150 ±40K±5 SK107M4-A0-20X	TOKO	1
532	CF303	4	X	P	28-0107200-00-01	CER FIL SFE10.7M SFE10.7MA10	MURATA	1
533	CF304	4	X	A	28-0107200-00-17	CER FIL CFSK107M4 150 ±40K±5 SK107M4-A0-20X	TOKO	1
534	CF304	4	X	P	28-0107200-00-01	CER FIL SFE10.7M SFE10.7MA10	MURATA	1
535	CF305	4	X	A	28-0105200-00-17	CER FIL CFSK105M4 150 ±40K±5 SK1052M4-A0-20X	TOKO	1
536	CF305	4	X	P	28-0105200-00-01	CER FIL SFE10.52M SFE10.52MA10	MURATA	1
537	D101	4	X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
538	D101	4	X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
539	D101	4	X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
540	D102	4	X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
541	D102	4	X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
542	D102	4	X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
543	D201	4	X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
544	D201	4	X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
545	D201	4	X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
546	D301	4	X	P	20-4000000-00-05	DIODE VARC 2.8-33.5pF D034 BULK B88008	PHILIPS	1
547	D403	4	X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
548	D403	4	X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
549	D403	4	X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
549	D700	4	X	P	26-0110205-00-01	LED RED RECTANGLE 2 X 5mm BULK	FUTEK	1
550	D800	4	X	P	20-6001701-50-07	DIODE BR1 DF10M 1A 700V BULK DF10M	GI	1
551	D801	4	X	P	20-2701281-20-07	DIODE RECT FAST REC RGP10 1A 280V DO-41 BULK RGP10G	GI	1
552	D802	4	X	P	20-1001102-20-01	DIODE RECT 1A/1000V DO41 BULK IN4007	ITT	1
553	D803	4	X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
554	D803	4	X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
555	D803	4	X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
556	D804	4	X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
556	D804	4	X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
557	D804	4	X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
558	D805	4	X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
558	D805	4	X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
559	D805	4	X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
560	D806	4	X	P	20-2701281-20-07	DIODE RECT FAST REC RGP10 1A 280V DO-41 BULK RGP10G	GI	1
561	D807	4	X	P	20-2701281-20-07	DIODE RECT FAST REC RGP10 1A 280V DO-41 BULK RGP10G	GI	1
561	D808	4	X	P	20-2503400-40-02	DIODE-SHY 3A40V DO-201AD BULK IN5822	RECTRON	1
562	D809	4	X	P	20-1301350-50-07	DIODE RECT FE1A 1A 35V D0204 BULK FE1A	GI	1
563	D810	4	X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
564	D810	4	X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
565	D810	4	X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
566	D811	4	X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
566	D811	4	X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
567	D811	4	X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
568	D812	4	X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
569	D812	4	X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
570	D812	4	X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
571	D813	4	X	P	20-3227002-00-01	DIODE ZENER BZX55 1/2W 5% D035 BULK BZX55-C27V	ITT	1
572	D814	4	X	A	20-0000000-00-16	DIODE SW 4NS D035 BULK IN4148	KEL	1
573	D814	4	X	A	20-0000000-00-04	DIODE SW 4NS D035 BULK IN4148	N.S	1
574	D814	4	X	P	20-0000000-00-01	DIODE SW 4NS D035 BULK IN4148	ITT	1
575	D815	4	X	P	20-3218002-00-01	DIODE ZENER BZX55 18V 1/2W 5% D035 BULK BZX55-C18V	ITT	1
576	F801	4	X	P	33-0111002-00-66	FUSE TIME-LAG 1.25A 250VAC 05 X 20mm VDE S504-TI.25A 250V	WELFORD	1
577	F801A	4	X	P	33-2002000-00-16	FUSE COVER 05 X 20mm PVC S3840620-23	LOGISTIC	1
578	FC801	4	X	P	33-1000000-00-02	FUSE CLIP 0.05mm 51E TYPE	BEL	1
579	FC801	4	X	A	33-1000001-00-48	FUSE CLIP 05mm VL-210A	WALTER	1
579	FC802	4	X	A	33-1000001-00-48	FUSE CLIP 05mm VL-210A	WALTER	1
580	FC802	4	X	P	33-1000000-00-02	FUSE CLIP 0.05mm 51E TYPE	BEL	1
581	HEAT SINK	4	X	P	14-0300800-02-00	MACHINE SCREW M3 X 6 PHN PLT	1	1
582	IFT301	4	X	P	24-3010700-01-11	IFT 10.7M-Z 82PF Q=80 7MM KS285NC	UKHANG	1
583	IFT302	4	X	P	24-3010700-01-11	IFT 10.7M-Z 82PF Q=80 7MM KS285NC	UKHANG	1
583	IFT303	4	X	P	24-3010700-01-11	IFT 10.7M-Z 82PF Q=80 7MM KS285NC	UKHANG	1
584	IR701	4	X	P	26-0641380-10-00	IR RX 940nm 380K±5 S-HIELD ST HC-377M	KODENSHI	1
585	J201	4	X	P	34-1051010-14-52	HEADER 5 PINS 2.54mm ST JM2411 SER JM2411-5	STAR WORLD	1
586	J202	4	X	P	34-4020400-00-45	RCA JACK 2 R-W PCB MOUNT RT HSP-202V-01	KUNMING	1
587	J203	4	X	P	34-0000002-00-46	SCART CONNECTOR 21PIN UPSIDE DOWN EI-023	UNTOP	1
587	J204	4	X	P	34-0000002-00-46	SCART CONNECTOR 21PIN UPSIDE DOWN EI-023	UNTOP	1
587	J205	4	X	P	34-0000002-00-46	SCART CONNECTOR 21PIN UPSIDE DOWN EI-023	UNTOP	1
588	J403	4	X	P	34-1071010-14-52	HEADER 7 PINS 2.54mm JM2411 SER JM2411-07	STAR WORLD	1
589	J404	4	X	P	34-1151010-14-52	HEADER 15 PINS 2.54mm JM2411 SER JM2411-15	STAR WORLD	1
590	J705	4	X	P	82-1524010-98-52	CABLE ASSY 15WAYS #24 2.64P JP2411 SERIES 230mm	STAR WORLD	1
591	J800	4	X	P	36-2213110-07-40	POWER CORD 220V 2.5A/250V AC L=6.5FT	HARVEST ELECT.	1
592	J801	4	X	P	34-1020010-16-52	HEADER 2 PINS 10mm PITCH JM1135-2	STAR WORLD	1

	R126	4	X	P	23-0222200-00-00	RES CF 2.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
660	R127	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
661	R128	4	X	P	23-0473200-00-00	RES CF 47K OHM ±5% 1/8W AXIAL BULK	ANY	1
662	R129	4	X	P	23-0511200-00-00	RES CF 510 OHM ±5% 1/8W AXIAL BULK	ANY	1
663	R130	4	X	P	23-0561200-00-00	RES CF 560 OHM ±5% 1/8W AXIAL BULK	ANY	1
664	R131	4	X	P	23-0101200-00-00	RES CF 100 OHM 5% 1/8W AXIAL BULK	ANY	1
665	R132	4	X	P	23-0661200-00-00	RES CF 660 OHM ±5% 1/8W AXIAL BULK	ANY	1
666	R133	4	X	P	23-0101220-00-00	RES CF 100 OHM 5% 1/4W AXIAL BULK	ANY	1
667	R134	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
668	R140	4	X	P	23-0332200-00-00	RES CF 3.3K OHM ±5% 1/8W AXIAL BULK	ANY	1
669	R140	4	X	P	23-0302200-00-00	RES CF 3K OHM 5% 1/8W AXIAL BULK	ANY	1
670	R141	4	X	P	23-0821200-00-00	RES CF 820 OHM ±5% 1/8W AXIAL BULK	ANY	1
671	R142	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
672	R143	4	X	P	23-0561200-00-00	RES CF 560 OHM ±5% 1/8W AXIAL BULK	ANY	1
673	R144	4	X	P	23-0151200-00-00	RES CF 150 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R145	4	X	P	23-0151200-00-00	RES CF 150 OHM ±5% 1/8W AXIAL BULK	ANY	1
674	R146	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
675	R147	4	X	P	23-0563200-00-00	RES CF 56K OHM ±5% 1/8W AXIAL BULK	ANY	1
676	R148	4	X	P	23-0511200-00-00	RES CF 510 OHM ±5% 1/8W AXIAL BULK	ANY	1
677	R148	4	X	P	23-0241200-00-00	RES CF 240 OHM 5% 1/8W AXIAL BULK	ANY	1
678	R150	4	X	P	23-0391200-00-00	RES CF 390 OHM ±5% 1/8W AXIAL BULK	ANY	1
679	R151	4	X	P	23-0122200-00-00	RES CF 1.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
680	R153	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
681	R157	4	X	P	23-0220200-00-00	RES CF 22 OHM ±5% 1/8W AXIAL BULK	ANY	1
682	R158	4	X	P	23-0331200-00-00	RES CF 330 OHM ±5% 1/8W AXIAL BULK	ANY	1
683	R161	4	X	P	23-0183200-00-00	RES CF 18K OHM ±5% 1/8W AXIAL BULK	ANY	1
684	R162	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
685	R163	4	X	P	23-0181200-00-00	RES CF 180 OHM 5% 1/8W AXIAL BULK	ANY	1
686	R164	4	X	P	23-0101200-00-00	RES CF 100 OHM 5% 1/8W AXIAL BULK	ANY	1
687	R165	4	X	P	23-0241200-00-00	RES CF 240 OHM 5% 1/8W AXIAL BULK	ANY	1
688	R168	4	X	P	23-0101200-00-00	RES CF 100 OHM 5% 1/8W AXIAL BULK	ANY	1
689	R167	4	X	P	23-0750200-00-00	RES CF 75 OHM ±5% 1/8W AXIAL BULK	ANY	1
690	R168	4	X	P	23-0279200-00-00	RES CF 2.7 OHM ±5% 1/8W AXIAL BULK	ANY	1
691	R171	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
692	R176	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
693	R178	4	X	P	23-0223200-00-00	RES CF 22K OHM ±5% 1/8W AXIAL BULK	ANY	1
694	R179	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
695	R180	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
696	R181	4	X	P	23-0151200-00-00	RES CF 150 OHM ±5% 1/8W AXIAL BULK	ANY	1
697	R182	4	X	P	23-0182200-00-00	RES CF 1.8K OHM 5% 1/8W AXIAL BULK	ANY	1
698	R186	4	X	P	23-0332200-00-00	RES CF 3.3K OHM ±5% 1/8W AXIAL BULK	ANY	1
699	R188	4	X	P	23-0220200-00-00	RES CF 22 OHM ±5% 1/8W AXIAL BULK	ANY	1
700	R190	4	X	P	23-0223200-00-00	RES CF 22K OHM ±5% 1/8W AXIAL BULK	ANY	1
701	R191	4	X	P	23-0560200-00-00	RES CF 56 OHM 5% 1/8W AXIAL BULK	ANY	1
702	R192	4	X	P	23-0100220-00-00	RES CF 10 OHM 5% 1/4W AXIAL BULK	ANY	1
703	R201	4	X	P	23-0750200-00-00	RES CF 75 OHM ±5% 1/8W AXIAL BULK	ANY	1
704	R202	4	X	P	23-1220100-00-00	RES MF 2.2K OHM ±1% 1/6W AXIAL BULK	ANY	1
	R203	4	X	P	23-1220100-00-00	RES MF 2.2K OHM ±1% 1/8W AXIAL BULK	ANY	1
705	R205	4	X	P	23-0479220-00-00	RES CF 4.7 OHM 5% 1/4W AXIAL BULK	ANY	1
706	R206	4	X	P	23-0750200-00-00	RES CF 75 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R207	4	X	P	23-0750200-00-00	RES CF 75 OHM ±5% 1/8W AXIAL BULK	ANY	1
707	R211	4	X	P	23-0680200-00-00	RES CF 68 OHM ±5% 1/8W AXIAL BULK	ANY	1
708	R212	4	X	P	23-0750200-00-00	RES CF 75 OHM ±5% 1/8W AXIAL BULK	ANY	1
709	R215	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
710	R217	4	X	P	23-0104200-00-00	RES CF 100K OHM 5% 1/8W AXIAL BULK	ANY	1
711	R218	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
712	R219	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
713	R221	4	X	P	23-0472200-00-00	RES CF 4.7K OHM ±5% 1/8W AXIAL BULK	ANY	1
714	R222	4	X	P	23-0104200-00-00	RES CF 100K OHM 5% 1/8W AXIAL BULK	ANY	1
715	R223	4	X	P	23-1220000-00-00	RES MF 220 OHM ±1% 1/5W AXIAL BULK	ANY	1
716	R224	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R225	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R226	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R227	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R228	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R229	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R230	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
717	R231	4	X	P	23-0222200-00-00	RES CF 2.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
718	R232	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
719	R233	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
720	R234	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
721	R235	4	X	P	23-0331200-00-00	RES CF 330 OHM ±5% 1/8W AXIAL BULK	ANY	1
722	R236	4	X	P	23-0331200-00-00	RES CF 330 OHM ±5% 1/8W AXIAL BULK	ANY	1
723	R237	4	X	P	23-0104200-00-00	RES CF 100K OHM 5% 1/8W AXIAL BULK	ANY	1
724	R238	4	X	P	23-0472200-00-00	RES CF 4.7K OHM ±5% 1/8W AXIAL BULK	ANY	1
725	R239	4	X	P	23-0680200-00-00	RES CF 68 OHM ±5% 1/8W AXIAL BULK	ANY	1
726	R243	4	X	P	23-0561200-00-00	RES CF 560 OHM ±5% 1/8W AXIAL BULK	ANY	1
727	R244	4	X	P	23-0750200-00-00	RES CF 75 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R245	4	X	P	23-0750200-00-00	RES CF 75 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R246	4	X	P	23-0750200-00-00	RES CF 75 OHM ±5% 1/8W AXIAL BULK	ANY	1
728	R248	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
729	R249	4	X	P	23-0680200-00-00	RES CF 68 OHM ±5% 1/8W AXIAL BULK	ANY	1
730	R250	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
731	R251	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
732	R252	4	X	P	23-0331200-00-00	RES CF 330 OHM ±5% 1/8W AXIAL BULK	ANY	1
733	R253	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
734	R254	4	X	P	23-0750200-00-00	RES CF 75 OHM ±5% 1/8W AXIAL BULK	ANY	1
735	R265	4	X	P	23-0680200-00-00	RES CF 68 OHM ±5% 1/8W AXIAL BULK	ANY	1
736	R271	4	X	P	23-0122200-00-00	RES CF 1.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
737	R273	4	X	P	23-0105200-00-00	RES CF 1M OHM 5% 1/8W AXIAL BULK	ANY	1
738	R275	4	X	P	23-0472200-00-00	RES CF 4.7K OHM ±5% 1/8W AXIAL BULK	ANY	1

802	R706	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R707	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R708	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R709	4	X	P	23-0561200-00-00	RES CF 560 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R710	4	X	P	23-0561200-00-00	RES CF 560 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R711	4	X	P	23-0561200-00-00	RES CF 560 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R712	4	X	P	23-0561200-00-00	RES CF 560 OHM ±5% 1/8W AXIAL BULK	ANY	1
803	R713	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
	R714	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
	R715	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
804	R716	4	X	P	23-0473200-00-00	RES CF 47K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R717	4	X	P	23-0473200-00-00	RES CF 47K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R718	4	X	P	23-0473200-00-00	RES CF 47K OHM ±5% 1/8W AXIAL BULK	ANY	1
805	R719	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
806	R722	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
807	R730	4	X	P	23-0333200-00-00	RES CF 22 OHM ±5% 1/8W AXIAL BULK	ANY	1
808	R731	4	X	P	23-0220200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
809	R800	4	X	P	23-0624200-00-00	RES CF 620K OHM 5% 1/4W AXIAL BULK	ANY	1
810	R801	4	X	A	23-3100280-01-11	RES VWW 10 OHM 5% 5V RADIAL BULK SQM	KAYOCO	1
811	R801	4		P	23-3100280-01-03	RES VWW 10 OHM 5% 5V RADIAL BULK BVR5N100U	KOA	1
812	R802	4	X	P	23-0104240-00-00	RES CF 100K OHM 5% 1W AXIAL BULK	ANY	1
813	R804	4		P	23-5229230-00-00	RES FUSIBLE 2.2 OHM 5% 1/2W AXIAL BULK	ANY	1
814	R805	4		P	23-3102280-01-03	RES VWW 1K OHM 5% 5V RADIAL BULK BSR5X1K0U	KOA	1
815	R805	4	X	A	23-3102280-01-11	RES VWW 1K OHM 5% 5V RADIAL BULK SQZ	KAYOCO	1
816	R806	4	X	P	23-0105200-00-00	RES CF 1M OHM 5% 1/8W AXIAL BULK	ANY	1
817	R807	4	X	P	23-1270200-00-00	RES MF 27K OHM 1% 1/6W AXIAL BULK	ANY	1
818	R808	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R809	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
819	R810	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
820	R811	4	X	P	23-0101220-00-00	RES CF 100 OHM 5% 1/4W AXIAL BULK	ANY	1
821	R812	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
822	R813	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
823	R814	4		P	23-2470230-00-00	RES MO 4.7 OHM 5% 1/2W AXIAL BULK	ANY	1
824	R815	4		P	23-2229230-00-00	RES MO 2.2 OHM 5% 1/2W AXIAL BULK	ANY	1
825	R816	4	X	P	23-0471200-00-00	RES CF 470 OHM ±5% 1/8W AXIAL BULK	ANY	1
826	R817	4	X	P	23-0101220-00-00	RES CF 100 OHM 5% 1/4W AXIAL BULK	ANY	1
827	R818	4	X	P	23-0122200-00-00	RES CF 1.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
828	R819	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
829	R821	4	X	P	23-0102230-00-00	RES CF 1K OHM 5% 1/2W AXIAL BULK	ANY	1
830	R822	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
831	R823	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
832	R824	4	X	P	23-0222200-00-00	RES CF 2.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
833	R825	4	X	P	23-0224200-00-00	RES CF 220K OHM 5% 1/8W AXIAL BULK	ANY	1
834	R826	4	X	P	23-0109240-00-00	RES CF 1 OHM 5% 1W AXIAL BULK	ANY	1
835	R827	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
836	R828	4	X	P	23-0104200-00-00	RES CF 100K OHM 5% 1/8W AXIAL BULK	ANY	1
837	R829	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
838	R830	4	X	P	23-0104200-00-00	RES CF 100K OHM 5% 1/8W AXIAL BULK	ANY	1
839	R831	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R832	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R833	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R834	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R835	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
840	R836	4	X	P	23-1270200-00-00	RES MF 27K OHM 1% 1/6W AXIAL BULK	ANY	1
841	R837	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
842	R838	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
843	R839	4	X	P	23-1120200-00-00	RES MF 12K OHM 1% 1/6W AXIAL BULK	ANY	1
844	R840	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
845	R842	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
846	R843	4	X	P	23-1390100-00-00	RES MF 3.9K OHM 1% 1/6W AXIAL BULK	ANY	1
847	R844	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
848	R845	4	X	P	23-1330100-00-00	RES MF 3.3K OHM 1% 1/6W AXIAL BULK	ANY	1
849	R846	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
	R847	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
850	R848	4	X	P	23-0561200-00-00	RES CF 560 OHM ±5% 1/8W AXIAL BULK	ANY	1
851	RN1	4	X	A	23-4472200-04-09	RES RN 4.7K OHM 5% 1/8W SIL 8 PINS COMMON PIN 1 RA1/808A472J	THUNDER	1
852	RN1	4		P	23-4472200-04-00	RES RN 4.7K OHM 5% 1/8W SIL 8 PINS COMMON PIN 1 EXBP807472J	PANASONIC	1
853	SW701	4		P	35-1001112-00-47	SWTACT NO 1PIT 500mA 50V ST H=5mm SK+HAK	ALPS	1
854	SW701	4		A	35-1001115-00-62	SWTACT NO 1PIT 50mA 12V VER H=5mm	KIE	1
855	SW703	4		P	35-1001112-00-47	SWTACT NO 1PIT 500mA 50V ST H=5mm SK+HAK	ALPS	1
856	SW703	4		A	35-1001115-00-62	SWTACT NO 1PIT 50mA 12V VER H=5mm	KIE	1
857	SW704	4		P	35-1001112-00-47	SWTACT NO 1PIT 500mA 50V ST H=5mm SK+HAK	ALPS	1
858	SW704	4		A	35-1001115-00-62	SWTACT NO 1PIT 50mA 12V VER H=5mm	KIE	1
859	SW706	4		P	35-1001112-00-47	SWTACT NO 1PIT 500mA 50V ST H=5mm SK+HAK	ALPS	1
860	SW706	4		A	35-1001115-00-62	SWTACT NO 1PIT 50mA 12V VER H=5mm	KIE	1
861	T801	4	X	P	24-5353011-01-08	LINE FILTER IF UJ-16 35mH SR1581	COREL	1
862	T802	4		P	25-0140003-11-08	XFORMER PW ERL-28 220V RC3894/ERL-28 VDE	COREL	1
863	T802	4	X	A	25-0140003-11-12	XFORMER PW ERL-28 220V ERL-28 VDE ERL-28	BRILLIANT	1
864	TP1	4	X	P	16-0130114-03-12	TEST PIN DIA. 1.3 X 11.3L 0.3TH-K BRASS	GOLD MEDAL	1
	TP2	4	X	P	16-0130114-03-12	TEST PIN DIA. 1.3 X 11.3L 0.3TH-K BRASS	GOLD MEDAL	1
865	TUN102	4	X	P	29-1009009-00-15	BS TUNER BF5-6312 BW27M±2050M±2 BF5-6312E	HITACHI	1
866	U101	4	X	P	27-9392000-00-04	I.C. VOLT COMPARATOR/OP AMP LM392 PDIL LM392	N.S.	1
867	U201	4	X	P	27-5079520-00-02	I.C. AV SWLA7952 4I-1 PDIL LA7952	SANYO	1
868	U202	4	X	P	27-5550110-02-01	I.C. OSD GEN M35011 PSDIL M35011-001SP	mitsubishi	1
869	U203	4		P	27-0540520-00-04	I.C. LOGIC 4052 PDIL CD4052	N.S.	1
870	U203	4		A	27-0540520-00-22	I.C. LOGIC ANALOG SW 4052 PDIL RCA4052	RCA	1
871	U301	4	X	P	27-7761600-05-21	I.C. AUDIO TDA6160X IF/W 3FM DEMOD FP TDA6160-2X	SIEMENS	1
872	U302	4	X	P	27-7618940-00-04	I.C. AUDIO LM1894 DNR PDIL LM1894N	N.S.	1
873	U303	4		P	27-0540520-00-04	I.C. LOGIC 4052 PDIL CD4052	N.S.	1
874	U303	4		A	27-0540520-00-22	I.C. LOGIC ANALOG SW 4052 PDIL RCA4052	RCA	1
875	U304	4		P	27-3000501-07-09	I.C. REG MC78L05 5V/0.1A TO-92 MC78L05	MOTOROLA	1

876	U401	4	P	27-1041204-02-12	MCU 4BIT 12KROM 256 RAM MPD751 PSDIL MPD75112CW	NEC	1
877	U402	4	X P	27-2300225-00-04	I.C. EEPROM 2KBYTE 250NS PDIL NM24C16N	N.S.	1
878	U402	4	X A	27-2300225-00-25	I.C. EEPROM 2KBYTE 250NS PDIL 24C16 AT24C16	ATMEL	1
879	U801	4	X F	27-9384200-00-20	I.C. PWM CONTROL CS3842 PDIL CS3842A	CHERRY	1
880	U802	4	X P	26-3000000-02-08	PHOTO-COUPLER POWER ISOLATION VDE CNX82A	QTC	1
881	U803	4	X A	27-8431000-07-14	I.C. VOLT REFERENCE NJM431 TO-92 NJM431L	JRC	1
882	U803	4	X F	27-8431000-07-15	IC VOLT REFERENCE TL431 TO-92 TL431C	TI	1
883	U804	4	X P	27-9392000-00-04	IC VOLT COMPARATOR /OP AMP LM392 PDIL LM392	N.S.	1
884	VC201	4	X A	22-7300210-00-02	CAP VC 30pF ±20% SEALED HORI.	TRIWOODS	1
885	VC201	4	X A	22-7300210-00-04	CAP VC 30pF ±20% SEALED HORI. CVN630	ELNA	1
886	VC201	4	X P	22-7300210-00-01	CAP VC 30pF ±20% SEALED HORI.	UNION	1
887	VC202	4	X A	22-7300210-00-02	CAP VC 30pF ±20% SEALED HORI.	TRIWOODS	1
888	VC202	4	X A	22-7300210-00-04	CAP VC 30pF ±20% SEALED HORI. CVN630	ELNA	1
889	VC202	4	X P	22-7300210-00-01	CAP VC 30pF ±20% SEALED HORI.	UNION	1
890	VR101	4	X P	30-0102105-02-22	VR SEM-FIX RES CF 1K OHM B 20% 5mm HOR KVSF637ASB1K	KOA	1
891	VR801	4	X P	30-0103105-02-22	VR SEM-FIXED RESISTOR CF 10K OHM B 20% 5mm HOR KVSF637ASB10K	KOA	1
892	VR802	4	X P	30-0102105-02-22	VR SEM-FIX RES CF 1K OHM B 20% 5mm HOR KVSF637ASB1K	KOA	1
893	X201	4	X A	28-5177200-02-20	CRYSTAL 17.734475MHz 30ppm HC-49U (17.734475MHz)	HOORAY	1
894	X201	4	X P	28-5177200-02-08	CRYSTAL 17.734475MHz 30ppm HC-49U	DEVETRON	1
895	X201	4	X A	28-5177200-02-22	CRYSTAL 17.734475MHz 30ppm HC-49U (17.734475MHz)	MIZU	1
896	X401	4	X P	28-5400100-02-19	CRYSTAL 4MHz 30ppm HC-49u	CHEQUERS	1
897	X401	4	X A	28-5400100-02-20	CRYSTAL 4.000MHz 30ppm HC-49U 4.000MHz	HOORAY	1
898	X401	4	X A	28-5400100-02-22	CRYSTAL 4.000MHz 30ppm HC-49U 4.000MHz	MIZU	1
899	Z101	4	X P	20-3227002-00-01	DIODE ZENER BZX55 1/2W 5% D035 BULK BZX55-C27V	ITT	1
900	Z201	4	X P	20-3251902-00-01	DIODE ZENER BZX55 5V1 1/2W 5% D035 BULK BZX55-C5V1	ITT	1
	Z202	4	X P	20-3251902-00-01	DIODE ZENER BZX55 5V1 1/2W 5% D035 BULK BZX55-C5V1	ITT	1
901	Z401	4	X P	20-3239902-00-01	DIODE ZENER BZX55 1/2W ±5% D035 BULK BZX55-C3V9	ITT	1
902	Z402	4	X P	20-3251902-00-01	DIODE ZENER BZX55 5V1 1/2W 5% D035 BULK BZX55-C5V1	ITT	1
903	Z405	4	X P	20-3291902-00-01	DIODE ZENER BZX55 9V1 1/2W 5% D035 BULK BZX55-C9V1	ITT	1



739	R276	4	X	P	23-0104200-00-00	RES CF 100K OHM 5% 1/8W AXIAL BULK	ANY	1
	R277	4	X	P	23-0104200-00-00	RES CF 100K OHM 5% 1/8W AXIAL BULK	ANY	1
740	R278	4	X	P	23-0472200-00-00	RES CF 4.7K OHM ±5% 1/8W AXIAL BULK	ANY	1
741	R279	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
742	R280	4	X	P	23-0472200-00-00	RES CF 4.7K OHM ±5% 1/8W AXIAL BULK	ANY	1
743	R281	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
744	R288	4	X	P	23-0301200-00-00	RES CF 390 OHM ±5% 1/8W AXIAL BULK	ANY	1
745	R301	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
746	R302	4	X	P	23-0151200-00-00	RES CF 150 OHM ±5% 1/8W AXIAL BULK	ANY	1
747	R303	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
748	R319	4	X	P	23-0151200-00-00	RES CF 150 OHM ±5% 1/8W AXIAL BULK	ANY	1
749	R311	4	X	P	23-0471200-00-00	RES CF 470 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R312	4	X	P	23-0471200-00-00	RES CF 470 OHM ±5% 1/8W AXIAL BULK	ANY	1
750	R313	4	X	P	23-0153200-00-00	RES CF 15K OHM ±5% 1/8W AXIAL BULK	ANY	1
751	R314	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
752	R315	4	X	P	23-0911200-00-00	RES CF 910 OHM 5% 1/8W AXIAL BULK	ANY	1
	R316	4	X	P	23-0911200-00-00	RES CF 910 OHM 5% 1/8W AXIAL BULK	ANY	1
753	R318	4	X	P	23-0222200-00-00	RES CF 2.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
754	R319	4	X	P	23-0682200-00-00	RES CF 6.8K OHM ±5% 1/8W AXIAL BULK	ANY	1
755	R320	4	X	P	23-0821200-00-00	RES CF 820 OHM ±5% 1/8W AXIAL BULK	ANY	1
756	R321	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
757	R322	4	X	P	23-0270200-00-00	RES CF 27 OHM ±5% 1/8W AXIAL BULK	ANY	1
758	R331	4	X	P	23-0101200-00-00	RES CF 100 OHM 5% 1/8W AXIAL BULK	ANY	1
	R332	4	X	P	23-0101200-00-00	RES CF 100 OHM 5% 1/8W AXIAL BULK	ANY	1
759	R333	4	X	P	23-0473200-00-00	RES CF 47K OHM ±5% 1/8W AXIAL BULK	ANY	1
760	R348	4	X	P	23-0222200-00-00	RES CF 2.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
761	R349	4	X	P	23-0182200-00-00	RES CF 1.8K OHM 5% 1/8W AXIAL BULK	ANY	1
762	R350	4	X	P	23-0222200-00-00	RES CF 2.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
763	R351	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R352	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R353	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R354	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
764	R355	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
765	R356	4	X	P	23-0222200-00-00	RES CF 2.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
766	R357	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R358	4	X	P	23-0333200-00-00	RES CF 33K OHM ±5% 1/8W AXIAL BULK	ANY	1
767	R359	4	X	P	23-0561200-00-00	RES CF 560 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R360	4	X	P	23-0561200-00-00	RES CF 560 OHM ±5% 1/8W AXIAL BULK	ANY	1
768	R363	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R364	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
769	R365	4	X	P	23-0223200-00-00	RES CF 22K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R366	4	X	P	23-0223200-00-00	RES CF 22K OHM ±5% 1/8W AXIAL BULK	ANY	1
770	R373	4	X	P	23-0473200-00-00	RES CF 47K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R374	4	X	P	23-0473200-00-00	RES CF 47K OHM ±5% 1/8W AXIAL BULK	ANY	1
771	R402	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R403	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
772	R404	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
773	R405	4	X	P	23-0222200-00-00	RES CF 2.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
774	R410	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R411	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
775	R417	4	X	P	23-0472200-00-00	RES CF 4.7K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R418	4	X	P	23-0472200-00-00	RES CF 4.7K OHM ±5% 1/8W AXIAL BULK	ANY	1
776	R420	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
777	R421	4	X	P	23-0104200-00-00	RES CF 100K OHM 5% 1/8W AXIAL BULK	ANY	1
779	R426	4	X	P	23-0472200-00-00	RES CF 4.7K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R427	4	X	P	23-0472200-00-00	RES CF 4.7K OHM ±5% 1/8W AXIAL BULK	ANY	1
780	R431	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R432	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
781	R433	4	X	P	23-0684200-00-00	RES CF 680K OHM 5% 1/8W AXIAL BULK	ANY	1
782	R434	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R435	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R441	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R442	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
783	R443	4	X	P	23-0471200-00-00	RES CF 470 OHM ±5% 1/8W AXIAL BULK	ANY	1
784	R444	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
785	R445	4	X	P	23-0100200-00-00	RES CF 10 OHM 5% 1/4W AXIAL BULK	ANY	1
786	R458	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
787	R460	4	X	P	23-0562200-00-00	RES CF 5.6K OHM 5% 1/8W AXIAL BULK	ANY	1
788	R461	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
789	R462	4	X	P	23-0102200-00-00	RES CF 1K OHM 5% 1/8W AXIAL BULK	ANY	1
790	R467	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R469	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R470	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
791	R472	4	X	P	23-1470100-00-00	RES MF 4.7K OHM 1% 1/6W AXIAL BULK	ANY	1
	R473	4	X	P	23-1470100-00-00	RES MF 4.7K OHM 1% 1/6W AXIAL BULK	ANY	1
792	R474	4	X	P	23-1120200-00-00	RES MF 12K OHM ±1% 1/6W AXIAL BULK	ANY	1
793	R475	4	X	P	23-1100200-00-00	RES MF 10K OHM ±1% 1/6W AXIAL BULK	ANY	1
794	R476	4	X	P	23-1100100-00-00	RES MF 1K OHM 1% 1/6W AXIAL BULK	ANY	1
795	R477	4	X	P	23-1200100-00-00	RES MF 2K OHM ±1% 1/6W AXIAL BULK	ANY	1
796	R478	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
797	R479	4	X	P	23-0222200-00-00	RES CF 2.2K OHM ±5% 1/8W AXIAL BULK	ANY	1
798	R480	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R481	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R482	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
	R483	4	X	P	23-0103200-00-00	RES CF 10K OHM ±5% 1/8W AXIAL BULK	ANY	1
799	R484	4	X	P	23-0102240-00-00	RES CF 1K OHM 5% 1/6W BULK AXIAL	ANY	1
800	R701	4	X	P	23-0101200-00-00	RES CF 100 OHM 5% 1/8W AXIAL BULK	ANY	1
801	R702	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R703	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R704	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1
	R705	4	X	P	23-0221200-00-00	RES CF 220 OHM ±5% 1/8W AXIAL BULK	ANY	1



583	J802	4	X P	82-0722008-99-62	CABLE ASSY 7 WAYS #22 2.54P JP2411 SERIES 150mm	STAR WORLD	1
594	J804	4	X P	82-0524008-99-52	CABLE ASSY 5 WAYS #24 2.54P JP2411 SERIES 70mm	STAR WORLD	1
595	JP1	4	X P	36-3245241-00-62	SINGLE WIRE #24 L=240mm BLACK TIN LEAD UL1007	STAR WORLD	1
596	JP3	4	X P	36-3240171-00-62	SINGLE WIRE #24 L=170mm RED TIN LEAD UL1007	STAR WORLD	1
	JP4	4	X P	36-3240171-00-62	SINGLE WIRE #24 L=170mm RED TIN LEAD UL1007	STAR WORLD	1
597	L101	4	X A	24-0278100-00-08	IND PEAK 2.7uH ±10% CEC SERIES AXIAL BULK CEC-2R7K	MATSUTA	1
598	L101	4	A	24-0278107-00-08	IND PEAK 2.7uH 10% CEC AXIAL BULK CEC-2R7K	COILS	1
599	L101	4	X P	24-0278100-00-02	IND PEAKING 2.7uH 10% AL0305 AXIAL BULK AL0305-2R7K	MATSUTA	1
600	L102	4	X A	24-0278100-00-08	IND PEAK 2.7uH ±10% CEC SERIES AXIAL BULK CEC-2R7K	MATSUTA	1
601	L102	4	X P	24-0278100-00-02	IND PEAKING 2.7uH 10% AL0305 AXIAL BULK AL0305-2R7K	MATSUTA	1
602	L102	4	A	24-0278107-00-08	IND PEAK 2.7uH 10% CEC AXIAL BULK CEC-2R7K	COILS	1
603	L103	4	X A	24-0278100-00-08	IND PEAK 2.7uH ±10% CEC SERIES AXIAL BULK CEC-2R7K	MATSUTA	1
604	L103	4	A	24-0278107-00-08	IND PEAK 2.7uH 10% CEC AXIAL BULK CEC-2R7K	COILS	1
605	L103	4	X P	24-0278100-00-02	IND PEAKING 2.7uH 10% AL0305 AXIAL BULK AL0305-2R7K	MATSUTA	1
606	L201	4	X A	24-0150101-00-01	IND CHOKE 15uH 10% SP0305 AXIAL BULK SP0305-150K-2	TDK	1
607	L201	4	X P	24-0150100-00-02	IND CHOKE 15uH 10% AL0305 AXIAL BULK AL0305-150K	MATSUTA	1
608	L302	4	X A	24-0569100-00-08	IND PEAK 5.6uH ±10% CEC SERIES AXIAL BULK CEC-5R6K	COILS	1
609	L302	4	X P	24-0569100-00-02	IND PEAK 5.6uH 10% AL0305 AXIAL BULK AL0305-5R6K	MATSUTA	1
610	L302	4	X A	24-0569101-00-01	IND CHOKE 5.6uH 10% SP0305 AXIAL BULK SP0305-5R6K-2	TDK	1
611	L303	4	X P	24-0278100-00-02	IND PEAKING 2.7uH 10% AL0305 AXIAL BULK AL0305-2R7K	MATSUTA	1
612	L303	4	X A	24-0278100-00-08	IND PEAK 2.7uH ±10% CEC SERIES AXIAL BULK CEC-2R7K	MATSUTA	1
613	L303	4	A	24-0278107-00-08	IND PEAK 2.7uH 10% CEC AXIAL BULK CEC-2R7K	COILS	1
614	L304	4	X P	24-0189100-00-02	IND CHOKE 1.8uH ±10% AL0305 AXIAL BULK AL0305-1R8K	MATSUTA	1
615	L401	4	X P	24-5101011-02-02	IND LINE CHOKE 100uH 1A 250VAC VDE RL8080-101K	MATSUTA	1
616	L801	4	X P	24-0330116-10-02	IND CHOKE 33uH ±10% RL8080 RADIAL BULK RL8080-330K	MATSUTA	1
617	L802	4	X P	24-0331115-10-02	IND CHOKE 330uH ±10% RL1415 RADIAL BULK RL1415-331K	MATSUTA	1
618	L803	4	X P	24-0330116-10-02	IND CHOKE 33uH ±10% RL8080 RADIAL BULK RL8080-330K	MATSUTA	1
619	LED0701	4	X P	41-1310000-00-03	LED DISPLAY 7-SEGMENT VDOT X3 GREEN A-563G-12	PARA	1
620	MOD1	4	X P	29-2000010-00-16	MODULATOR L-RMBT-E38LS PAL G CH30-40 L-RMBT-E38LS	HVA LIN	1
621	MOD1	4	X A	29-2000006-00-05	MODULATOR EL165IT PAL G CHAN 31-39 EL165IT	SHARP	1
622	Q102	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q103	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
623	Q104	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
624	Q106	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q108	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q109	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q110	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
625	Q111	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
626	Q112	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q118	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q121	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
627	Q122	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
628	Q130	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
629	Q134	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
630	Q147	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q152	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q175	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q204	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q205	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
631	Q206	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
	Q207	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
	Q209	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
632	Q210	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q211	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q212	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
633	Q213	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
634	Q259	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q301	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
635	Q302	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
	Q303	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
636	Q401	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q406	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q407	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q408	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
637	Q410	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
	Q411	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
638	Q412	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
	Q413	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
639	Q414	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
640	Q415	4	X P	21-1036004-50-06	XTR PW2SD882 3A 60V TO126 BULK 2SD882	NEC	1
641	Q415	4	X A	21-1036006-50-06	XTR PW2SD882Q 3A 60V TO126 BULK 2SD882Q	NEC	1
642	Q415	4	X A	21-1036005-50-06	XTR PW2SD882P 3A 60V TO126 BULK 2SD882P	NEC	1
643	Q416	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
644	Q701	4	X P	21-0117100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
	Q702	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
	Q703	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
645	Q801	4	X P	21-1054510-30-09	XTR PWMJF18004 5A 450V TO-220 BULK MJF18004	MOTOROLA	1
646	Q802	4	X P	21-1045000-50-12	XTR PW2SB1143S 4A 50V TO-126 BULK 2SB1143S	SAWYO	1
647	Q803	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
648	Q804	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
649	Q805	4	X P	21-0100100-00-00	XTR SS 2SA1015 PNP HFE100 200M TO-92 BULK 2SA1015Y	TOSHIBA	1
650	Q806	4	X P	21-0000010-00-00	XTR SS 2SC1815 NPN HEF 100 200M TO-92 BULK 2SC1815Y	TOSHIBA	1
651	Q807	4	X P	21-1036008-30-12	XTR PW2SD1913 3A 60V TO-220ML BULK 2SD1913R	SAWYO	1
652	R101	4	X P	23-0222220-00-00	RES CF 2K2 OHM ±5% 1/4W AXIAL BULK	ANY	1
653	R102	4	X P	23-0222220-00-00	RES CF 2.2 OHM ±5% 1/4W AXIAL BULK	ANY	1
654	R111	4	X P	23-0220200-00-00	RES CF 22 OHM ±5% 1/8W AXIAL BULK	ANY	1
655	R121	4	X P	23-0104200-00-00	RES CF 100K OHM ±5% 1/8W AXIAL BULK	ANY	1
656	R122	4	X P	23-0473200-00-00	RES CF 47K OHM ±5% 1/8W AXIAL BULK	ANY	1
657	R123	4	X P	23-0471200-00-00	RES CF 470 OHM ±5% 1/8W AXIAL BULK	ANY	1
658	R124	4	X P	23-0391200-00-00	RES CF 390 OHM ±5% 1/8W AXIAL BULK	ANY	1
659	R125	4	X P	23-0222220-00-00	RES CF 2.2K OHM ±5% 1/8W AXIAL BULK	ANY	1

424	C431	4	X	A	22-1220150-01-24	CAP CER TC 22pF 50V ±10% NPO RAD ST2.5 BULK RCNPO220K502	BIL	1
425	C431	4	X	P	22-1220150-01-01	CAP CER CCU05 22pF 10% 50V NPO RAD ST2.5 BULK CCU05NPO22	GUIDING	1
426	C432	4	X	A	22-1220150-01-24	CAP CER TC 22pF 50V ±10% NPO RAD ST2.5 BULK RCNPO220K502	BIL	1
427	C432	4	X	P	22-1220150-01-01	CAP CER CCU05 22pF 10% 50V NPO RAD ST2.5 BULK CCU05NPO22	GUIDING	1
	C444	4	X	P	22-1220150-01-01	CAP CER CCU05 22pF 10% 50V NPO RAD ST2.5 BULK CCU05NPO22	GUIDING	1
428	C444	4	X	A	22-1220150-01-24	CAP CER TC 22pF 50V ±10% NPO RAD ST2.5 BULK RCNPO220K502	BIL	1
	C445	4	X	A	22-1220150-01-24	CAP CER TC 22pF 50V ±10% NPO RAD ST2.5 BULK RCNPO220K502	BIL	1
429	C445	4	X	P	22-1220150-01-01	CAP CER CCU05 22pF 10% 50V NPO RAD ST2.5 BULK CCU05NPO22	GUIDING	1
430	C446	4	X	A	22-1220150-01-24	CAP CER TC 22pF 50V ±10% NPO RAD ST2.5 BULK RCNPO220K502	BIL	1
431	C446	4	X	P	22-1220150-01-01	CAP CER CCU05 22pF 10% 50V NPO RAD ST2.5 BULK CCU05NPO22	GUIDING	1
	C456	4	X	P	22-1220150-01-01	CAP CER CCU05 22pF 10% 50V NPO RAD ST2.5 BULK CCU05NPO22	GUIDING	1
432	C456	4	X	A	22-1220150-01-24	CAP CER TC 22pF 50V ±10% NPO RAD ST2.5 BULK RCNPO220K502	BIL	1
433	C457	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
434	C457	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
435	C457	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
436	C458	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
437	C458	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5VIF RAD ST7.5 BULK HKF104M507	BIL	1
438	C458	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
439	C459	4	X	A	22-1104170-31-12	CAP ELEC CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
440	C459	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5VIF RAD ST7.5 BULK HKF104M507	BIL	1
441	C459	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
442	C460	4	X	A	22-3471022-00-02	CAP ELEC SM 470uF 16V 20% RAD ST5 BULK SM1C471MXN10125	ELITE	1
443	C460	4	X	A	22-3471022-00-21	CAP ELEC RSG 470uF 16V ±20% RAD 105°C BULK RSG-16V471MS43	ELNA	1
444	C460	4	X	A	22-3471022-00-14	CAP ELEC RX 470uF 16V 20% RAD BULK 2RX1C-B477MCS10020	SAMHWA	1
445	C460	4	X	P	22-3471022-00-00	CAP ELEC GS 470uF 16V 20% RAD ST5 BULK GS471M016G130CXC	CAPXON	1
446	C460	4	X	A	22-3471022-00-08	CAP ELEC SM 470uF 16V ±20% 85°C VER BULK	YEC	1
447	C461	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
448	C461	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
449	C461	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5VIF RAD ST7.5 BULK HKF104M507	BIL	1
450	C462	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
451	C462	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
452	C462	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
453	C463	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
454	C463	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
455	C463	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
456	C464	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
457	C464	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
458	C464	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
459	C465	4	X	P	22-4133203-10-10	CAP MYLAR KT-G 3300pF 100V 10% RAD ST3.5 BULK	HYOCHUN	1
460	C465	4	X	A	22-4133203-10-17	CAP MYLAR CGB2M 3300pF 100V 10% RAD BULK	DAEHLING	1
461	C703	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
462	C703	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5VIF RAD ST7.5 BULK HKF104M507	BIL	1
463	C703	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
464	C705	4	X	P	22-3471022-00-08	CAP ELEC SM 470uF 16V ±20% 85°C VER BULK	YEC	1
465	C705	4	X	A	22-3471022-00-21	CAP ELEC RSG 470uF 16V ±20% RAD 105°C BULK RSG-16V471MS43	ELNA	1
466	C705	4	X	A	22-3471022-00-14	CAP ELEC RX 470uF 16V 20% RAD BULK 2RX1C-B477MCS10020	SAMHWA	1
467	C705	4	X	A	22-3471022-00-02	CAP ELEC SM 470uF 16V 20% RAD ST5 BULK SM1C471MXN10125	ELITE	1
468	C705	4	X	A	22-3471022-00-00	CAP ELEC GS 470uF 16V 20% RAD ST5 BULK GS471M016G130CXC	CAPXON	1
469	C711	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
470	C711	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXN0511CX	ELITE	1
471	C711	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
472	C800	4	X	P	22-4422412-20-05	CAP M.P. PROP XG-VS 0.22uF 20% 250V AC	TEAPO	1
473	C801	4	X	P	22-4410412-20-05	CAP M.P. PROP XG-VS 0.1uF 20% 250VAC	TEAPO	1
474	C804	4	X	P	22-3680162-00-15	CAP ELEC KL 68uF 450V 20% RAD BULK 3KL2VW686M1C22035	SAMHWA	1
475	C804	4	X	A	22-3680162-00-20	CAP ELEC LG2A 68uF 450V 20% RAD BULK LG2A450V68M-22B	TOSIN	1
476	C805	4	X	A	22-3221032-00-18	CAP ELEC KR1 220uF 25V 20% RAD ST5 BULK KR1-25V221MC	KOSH-IN	1
477	C805	4	X	P	22-3221032-00-00	CAP ELEC GS 220uF 25V 20% RAD ST3.5 BULK GS221M025F120CXC	CAPXON	1
478	C805	4	X	A	22-3221032-00-08	CAP ELEC SM 220uF 25V ±20% 85°C VER BULK	YEC	1
479	C806	4	X	P	22-1331650-09-21	CAP CER HR 330pF 1KV 10% SL RAD ST5 BULK DE5115-979 SL 331J1K	MURATA	1
480	C807	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
481	C807	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5VIF RAD ST7.5 BULK HKF104M507	BIL	1
482	C807	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
483	C808	4	X	A	22-4110203-10-17	CAP MYLAR CGB2M 1000pF 100V 10% RAD BULK	DAEHLING	1
484	C808	4	X	P	22-4110203-10-10	CAP MYLAR KF-G 1000pF 100V 10% RAD ST3.5 BULK	HYOCHUN	1
485	C810	4	X	P	22-3106052-00-00	CAP ELEC GS 1uF 50V 20% RAD ST2.5 BULK GS010M050C110CXC	CAPXON	1
486	C810	4	X	A	22-3106052-00-18	CAP ELEC KR1 1uF 50V 20% RAD BULK KR1-50V010MA	KOSH-IN	1
487	C811	4	X	P	22-1102150-30-11	CAP CER CKU08 1000PF 10% 50V Y5E RAD ST5CKU06Y5E102KL45AE	GUIDING	1
488	C811	4	X	A	22-1102150-09-01	CAP CER CCU05 1nF 10% 50V SL RAD ST5 BULK CCU05SL102KL45AE	GUIDING	1
489	C811	4	X	A	22-1102150-17-23	CAP CER HK 1000pF 50V ±10% B RAD ST2.5 BULK HKB102K502	BIL	1
490	C812	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
491	C812	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5VIF RAD ST7.5 BULK HKF104M507	BIL	1
492	C812	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
493	C813	4	X	P	22-3331042-30-14	CAP ELEC RX 330uF 35V 20% RAD BULK 2RX1W-B337MCS10025	SAMHWA	1
494	C813	4	X	A	22-3331042-30-21	CAP ELEC RSG 330uF 35V ±20% RAD 105°C BULK RSG-35V331MS53	ELNA	1
495	C814	4	X	P	22-3471032-30-14	CAP ELEC RX 470uF 25V 20% RAD BULK 2RX1W-B477MCS10030	SAMHWA	1
496	C814	4	X	A	22-3471032-30-21	CAP ELEC RSG 470uF 25V ±20% RAD 105°C BULK RSG-25V471MS53	ELNA	1
497	C815	4	X	P	22-3222012-30-14	CAP ELEC RX 220uF 10V 20% RAD BULK 2RX1A-B228MCS13025	SAMHWA	1
498	C815	4	X	A	22-3222012-30-21	CAP ELEC RSG 220uF 10V ±20% RAD 105°C BULK RSG-10V222MS63	ELNA	1
499	C816	4	X	P	22-3101042-30-14	CAP ELEC RX 100uF 35V 20% RAD BULK 2RX1W-B107MCS1012M	SAMHWA	1
500	C816	4	X	A	22-3101042-30-21	CAP ELEC RSG 100uF 35V ±20% RAD 105°C BULK RSG-35V101MS41	ELNA	1
501	C817	4	X	P	22-1102150-30-11	CAP CER CKU08 1000PF 10% 50V Y5E RAD ST5CKU06Y5E102KL45AE	GUIDING	1
502	C817	4	X	A	22-1102150-09-01	CAP CER CCU05 1nF 10% 50V SL RAD ST5 BULK CCU05SL102KL45AE	GUIDING	1
503	C817	4	X	A	22-1102150-17-23	CAP CER HK 1000pF 50V ±10% B RAD ST2.5 BULK HKB102K502	BIL	1
	C818	4	X	A	22-1102150-17-23	CAP CER HK 1000pF 50V ±10% B RAD ST2.5 BULK HKB102K502	BIL	1
504	C818	4	X	P	22-1102150-30-11	CAP CER CKU08 1000PF 10% 50V Y5E RAD ST5CKU06Y5E102KL45AE	GUIDING	1
505	C818	4	X	A	22-1102150-09-01	CAP CER CCU05 1nF 10% 50V SL RAD ST5 BULK CCU05SL102KL45AE	GUIDING	1
506	C819	4	X	A	22-1102150-17-23	CAP CER HK 1000pF 50V ±10% B RAD ST2.5 BULK HKB102K502	BIL	1
507	C819	4	X	A	22-1102150-09-01	CAP CER CCU05 1nF 10% 50V SL RAD ST5 BULK CCU05SL102KL45AE	GUIDING	1
508	C819	4	X	P	22-1102150-30-11	CAP CER CKU08 1000PF 10% 50V Y5E RAD ST5CKU06Y5E102KL45AE	GUIDING	1
509	C820	4	X	A	22-1101150-09-24	CAP CER TC 100pF 50V ±10% SL RAD ST2.5 BULK TCSSL100K502	BIL	1
510	C820	4	X	P	22-1101150-09-01	CAP CER CCU05 100pF 50V 10% SL RAD ST5 BULK CCU05SL101KL45AE	GUIDING	1

250	C229	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
	C230	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
251	C230	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
252	C230	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
253	C231	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
254	C231	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
255	C231	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
256	C232	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
257	C232	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
258	C232	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
259	C233	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
260	C233	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
261	C233	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
	C234	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
262	C234	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
263	C234	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
	C235	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
264	C235	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
265	C235	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
	C236	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
266	C236	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
267	C236	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
268	C239	4	X	A	22-1561150-09-24	CAP CER TC 560pF 50V ±10% SL RAD ST5 BULK TC561K505	BIL	1
269	C239	4	X	P	22-1561150-30-16	CAP CER CKU05 560pF 10% 50V Y5E RAD ST5 BULK CKU05Y5E561KL	GLIDING	1
270	C240	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
271	C240	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
272	C240	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
273	C241	4	X	A	22-1471150-30-16	CAP CER CKU05 470pF 10% 50V Y5E RAD ST5 BULK CKU05Y5E471KL45CE	GLIDING	1
274	C241	4	X	P	22-1471150-09-08	CAP CER CCU10 470pF 10% 50V SL RAD ST5 BULK CCU10SL471KL45AE	GLIDING	1
275	C241	4	X	A	22-1471150-09-24	CAP CER TC 470pF 50V ±10% SL RAD ST5 BULK TC561K505	BIL	1
276	C242	4	X	P	22-1151150-09-15	CAP CER CCU06 150pF 10% 50V SL RAD ST2.5 BULK CCU06SL151KL	GLIDING	1
277	C242	4	X	A	22-1151150-09-24	CAP CER TC 150pF 50V ±10% SL RAD ST2.5 BULK TC561K505	BIL	1
278	C253	4	X	A	22-3221022-00-18	CAP ELEC KR1 220uF 16V ±20% RAD BULK KR1-16V221MC	KOSH-IN	1
279	C253	4	X	A	22-3221022-00-02	CAP ELEC SM 220uF 16V 20% RAD ST2.5 BULK SM1C221MXN0812	ELITE	1
280	C253	4	X	P	22-3221022-00-08	CAP ELEC SM 220uF 16V 20% VER BULK	YEC	1
281	C256	4	X	P	22-1221150-09-10	CAP CER CCU08 220pF 50V 10% SL RAD ST5 BULK CCU08SL221KL45A	GLIDING	1
282	C256	4	X	A	22-1221150-09-24	CAP CER TC 220pF 50V ±10% SL RAD ST2.5 BULK TC561K505	BIL	1
283	C257	4	X	A	22-1103160-28-23	CAP CER HK 10nF 50V ±20% Z5U RAD ST5 BULK HK103M505	BIL	1
284	C257	4	X	P	22-1103160-28-11	CAP CER CKU06 10nF 20% 50V Z5U RAD ST5 BULK CKU06Z5U103ML4	GLIDING	1
285	C259	4	X	P	22-3106052-00-00	CAP ELEC GS 1uF 50V 20% RAD ST2.5 BULK GS010M050C110CXC	CAPXON	1
286	C260	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
287	C260	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
288	C260	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
289	C301	4	X	A	22-1680150-01-24	CAP CER TC 68pF 50V ±10% NPO RAD ST2.5 BULK TCNPO680K502	BIL	1
290	C301	4	X	P	22-1680150-09-01	CAP CER CCU05 68pF 10% 50V SL RAD ST2.5 BULK CCU05SL680K	GLIDING	1
291	C302	4	X	A	22-1680150-01-24	CAP CER TC 68pF 50V ±10% NPO RAD ST2.5 BULK TCNPO680K502	BIL	1
292	C302	4	X	P	22-1680150-09-01	CAP CER CCU05 68pF 10% 50V SL RAD ST2.5 BULK CCU05SL680K	GLIDING	1
293	C303	4	X	P	22-1101150-09-01	CAP CER CCU05 100pF 50V 10% SL RAD ST5 BULK CCU05SL101KL45	GLIDING	1
294	C303	4	X	A	22-1101150-09-24	CAP CER TC 100pF 50V ±10% SL RAD ST2.5 BULK TC561K505	BIL	1
295	C304	4	X	A	22-1151150-09-24	CAP CER TC 150pF 50V ±10% SL RAD ST2.5 BULK TC561K505	BIL	1
296	C304	4	X	P	22-1151150-09-15	CAP CER CCU06 150pF 10% 50V SL RAD ST2.5 BULK CCU06SL151KL	GLIDING	1
297	C305	4	X	P	22-1101150-09-01	CAP CER CCU05 100pF 50V 10% SL RAD ST5 BULK CCU05SL101KL45	GLIDING	1
298	C305	4	X	A	22-1101150-09-24	CAP CER TC 100pF 50V ±10% SL RAD ST2.5 BULK TC561K505	BIL	1
299	C306	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
300	C306	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
301	C306	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
302	C307	4	X	A	22-1390150-01-24	CAP CER TC 39pF ±10% 50V NPO BULK RAD ST5 BULK TCNPO390K505	BIL	1
303	C307	4	X	P	22-1390150-01-01	CAP CER CCU05 39pF 10% 50V NPO RAD ST2.5 BULK CCU05NPO390	GLIDING	1
304	C311	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
305	C311	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
306	C311	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
307	C312	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
308	C312	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
309	C312	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
310	C313	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
311	C313	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
312	C313	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
313	C315	4	X	A	22-1102150-17-23	CAP CER HK 1000pF 50V ±10% B RAD ST2.5 BULK HKB102K502	BIL	1
314	C315	4	X	P	22-1102150-30-11	CAP CER CKU06 1000pF 10% 50V Y5E RAD ST5 BULK CKU06Y5E102KL45AE	GLIDING	1
315	C316	4	X	P	22-3106052-00-00	CAP ELEC GS 1uF 50V 20% RAD ST2.5 BULK GS010M050C110CXC	CAPXON	1
316	C317	4	X	P	22-182303-10-10	CAP MYLAR KT-G 0.082uF 100V 10% RAD ST6.5 BULK KT-G823K100V	HYOCHUN	1
317	C317	4	X	A	22-182303-10-10	CAP MYLAR KT-G 0.082uF 100V 10% RAD ST6.5 BULK KT-G823K100V	HYOCHUN	1
318	C318	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
319	C318	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
320	C318	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
321	C319	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GLIDING	1
322	C319	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80/-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
323	C319	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GLIDING	1
324	C320	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
325	C320	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
326	C320	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1
327	C321	4	X	P	22-182303-10-10	CAP MYLAR KT-G 0.082uF 100V 10% RAD ST6.5 BULK KT-G823K100V	HYOCHUN	1
	C321	4	X	A	22-182303-10-10	CAP MYLAR KT-G 0.082uF 100V 10% RAD ST6.5 BULK KT-G823K100V	HYOCHUN	1
328	C322	4	X	A	22-147303-10-10	CAP MYLAR KT-G 47nF 50V 5% RAD ST5 BULK KT-G473K50V	HYOCHUN	1
329	C322	4	X	P	22-147303-10-10	CAP MYLAR KT-G 0.047uF 100V 10% RAD ST6.5 BULK	HYOCHUN	1
330	C322	4	X	A	22-147303-10-17	CAP MYLAR CQ82M 47nF 100V 10% RAD BULK	DAEJUNG	1
331	C323	4	X	P	22-142303-10-10	CAP MYLAR KT-G 0.022uF 100V 10% RAD ST6.5 BULK KT-G223K100V	HYOCHUN	1
332	C323	4	X	A	22-142303-10-17	CAP MYLAR CQ82M 0.022uF 100V 10% RAD BULK	DAEJUNG	1
333	C324	4	X	A	22-3100022-00-02	CAP ELEC SM 10uF 16V ±20% RAD ST2.5 BULK SM1CR100MXN0511	ELITE	1
334	C324	4	X	A	22-3100022-00-19	CAP ELEC KR2 10uF 16V 20% RAD BULK KR2-16V100MA	KOSH-IN	1
335	C324	4	X	P	22-3100022-00-08	CAP ELEC SM 10uF 16V ±20% 85°C VER BULK	YEC	1

74	REMOTE CABIN	2	X	P	13-0200500-24-00	SELF TAPING SCREW 2 X 5 PH TYPE "B" BLK PLT	TEO CHEOW SENG/MELCO	1
75	REMOTE CABIN	2	X	P	13-0200500-24-00	SELF TAPING SCREW 2 X 5 PH TYPE "B" BLK PLT	MELCO	1
76		1		P	60-4131120-10-00	GIFT BOX J7E 41 X 31 X 12cm W/O HANDLE 400LB BROWN R.O BINATONE		1
77		1	X	P	64-0040008-00-00	POLYBAG WITH SILKSCREEN (431 X 457mm)		1
78		1	X	P	17-0050011-00-13	UJCSA PVC TUBE 105°C 300V (ID9.5mm X L1mm) DC-3	ANY	50 mm
79		1		P	67-0070000-00-00	CARTON BOX J7E "BINATONE"		0.2
80		1			00-0000707-00-00	PRODUCT ASSY J7E REV.0 MAIN UNIT (ES2000 BINATONE)		
81		1			90-0000707-00-01	PRODUCT ASSY J7E REV.0 REMOTE (ES2000 BINATONE)		
82		1	P		63-0070002-00-01	POLYFOAM W/REMOTE CONTROL J7E R.1		1
83		1		P	64-0090001-00-00	POLYBAG REMOTE J9 270 X 90mm R.O		1
84		1		P	74-0000707-00-00	EEPROM FIRM WIRE J7E REV. 0 (ES2000 BINATONE)		1
85		1		P	63-0070001-00-00	POLYFOAM J7E R.O		1
86		1		P	36-1200142-50-29	SHIELD CABLE 3C-2V L=1430mm BLACK W/2PIN PLUG	COULOMB	1
87		0			95-0000707-00-07	SAT J7E REV.0 SAT RECEIVER (ES2000 BINATONE)		
88		4		P	55-1070030-11-03	PCB FRONT BOARD J7 SS FR2 (94V0) 1.6mm R.1,1		1
89		4		P	55-1070010-11-04	PCB MAIN BOARD J7 SS FR2 (94V0) 1.6mm R.1,1		1
90		4		P	55-1070025-11-04	SMPS BD (XPC) SS		1
91		4		P	11-0070108-00-00	SHIELDING BOX J7E ZINC R.O.0		1
92		4		P	11-0070098-80-00	HEAT SINK (12 X 18) J7E GP 1.2mm R.O.0		1
93	C109	4	X	A	22-3477052-00-18	CAP ELEC KR1 0.47uF 50V 20% RAD ST5 BULK KR1-50VR47MA	KOSH-IN	1
94	C109	4	X	P	22-3477052-00-00	CAP ELEC GS 0.47uF 50V 20% RAD ST 2.5 BULK GSR47M050C110CXC	CAPXON	1
95	C110	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
96	C110	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
97	C110	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXXN0511CXC	ELITE	1
98	C111	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
99	C111	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
100	C111	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
101	C112	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXXN0511CXC	ELITE	1
102	C112	4	X	A	22-3470022-00-10	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
103	C112	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
104	C113	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
105	C113	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
106	C113	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
107	C114	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
108	C114	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
109	C114	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
110	C115	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
111	C115	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
112	C115	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXXN0511CXC	ELITE	1
113	C116	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
114	C116	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
115	C116	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
116	C119	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
117	C119	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
118	C119	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXXN0511CXC	ELITE	1
119	C120	4	X	P	22-1821150-09-01	CAP CER CCU05 820pF 10% 50V SL RAD ST2.5 BULK CCU05SL821KL45CE	GUIDING	1
120	C120	4	X	A	22-1821150-09-24	CAP CER TC 820pF 50V ±10% SL RAD ST5 BULK TC821KL505	BIL	1
121	C121	4	X	A	22-1471150-30-16	CAP CER CKU05 470pF 10% 50V Y5E RAD ST5 BULK CKU05Y5E471KL45CE	GUIDING	1
122	C121	4	X	A	22-1471150-09-24	CAP CER TC 470pF 50V ±10% SL RAD ST5 BULK TC821KL505	BIL	1
123	C121	4	X	P	22-1471150-09-08	CAP CER CCU10 470pF 10% 50V SL RAD ST5 BULK CCU10SL471KL45A	GUIDING	1
124	C122	4	X	P	22-1121150-09-01	CAP CER CCU05 120pF 10% 50V SL RAD ST2.5 BULK CCU05SL121	GUIDING	1
125	C122	4	X	A	22-1121150-09-24	CAP CER TC 120pF 50V ±10% SL RAD ST2.5 BULK TC821KL502	BIL	1
126	C123	4	X	P	22-1221150-09-10	CAP CER CCU08 220pF 50V 10% SL RAD ST5 BULK CCU08SL221KL45A	GUIDING	1
127	C123	4	X	A	22-1221150-09-24	CAP CER TC 220pF 50V ±10% SL RAD ST2.5 BULK TC822KL502	BIL	1
128	C124	4	X	A	22-1181150-09-24	CAP CER TC 180pF 50V ±10% SL RAD ST2.5 BULK TC821KL502	BIL	1
129	C124	4	X	P	22-1181150-09-15	CAP CER CCU06 180pF ±10% 50V SL RAD ST2.5 BULK CCU06SL1	GUIDING	1
130	C125	4	X	A	22-1331150-09-24	CAP CER TC 330pF 50V ±10% SL RAD ST2.5 BULK TC823KL502	BIL	1
131	C125	4	X	P	22-1331150-09-10	CAP CER CCU08 330pF 10% 50V SL RAD ST5 BULK CCU08SL331KL45A	GUIDING	1
132	C126	4	X	A	22-1471150-30-16	CAP CER CKU05 470pF 10% 50V Y5E RAD ST5 BULK CKU05Y5E471KL45CE	GUIDING	1
133	C126	4	X	A	22-1471150-09-24	CAP CER TC 470pF 50V ±10% SL RAD ST5 BULK TC821KL505	BIL	1
134	C126	4	X	P	22-1471150-09-08	CAP CER CCU10 470pF 10% 50V SL RAD ST5 BULK CCU10SL471KL45A	GUIDING	1
135	C127	4	X	P	22-1221150-09-10	CAP CER CCU08 220pF 50V 10% SL RAD ST5 BULK CCU08SL221KL45A	GUIDING	1
136	C127	4	X	A	22-1221150-09-24	CAP CER TC 220pF 50V ±10% SL RAD ST2.5 BULK TC822KL502	BIL	1
137	C128	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
138	C128	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
139	C128	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXXN0511CXC	ELITE	1
140	C129	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXXN0511CXC	ELITE	1
141	C129	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
142	C130	4	X	A	22-1222160-28-23	CAP CER HK 2.2nF 50V ±20% Z5U/F RAD ST2.5 BULK HKE22M502	BIL	1
143	C130	4	X	P	22-1222160-28-16	CAP CER CKU05 2.2nF 20% 50V Z5U RAD ST5 BULK CKU05Z5U222ML	GUIDING	1
144	C131	4	X	P	22-3470022-00-08	CAP ELEC SM 47uF 16V ±20% 85°C VER BULK	YEC	1
145	C131	4	X	A	22-3470022-00-02	CAP ELEC SM 47uF 16V 20% RAD ST2.5 BULK SM1C470MXXN0511CXC	ELITE	1
146	C131	4	X	A	22-3470022-00-19	CAP ELEC KR2 47uF 16V 20% RAD BULK KR2-16V470MB	KOSH-IN	1
147	C134	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
148	C134	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
149	C134	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
150	C136	4	X	P	22-3100052-00-19	CAP ELEC KR2 10uF 50V 20% RAD BULK KR2-50V100MC	KOSH-IN	1
151	C136	4	X	A	22-3100052-00-02	CAP ELEC SM 10uF 50V ±20% RAD ST2.5 BULK SM1H100MXXN051	ELITE	1
152	C137	4	X	P	22-1104160-28-18	CAP CER CGB08 0.1uF 20% Z5U RAD ST5 BULK CGB08Z50104KL45CE	GUIDING	1
153	C137	4	X	A	22-1104160-31-23	CAP CER HK 0.1uF 50V +80-20% Z5V/F RAD ST7.5 BULK HKF104M507	BIL	1
154	C137	4	X	A	22-1104170-31-12	CAP CER CKU14 0.1uF +80/-20% 50V Z5V RAD ST5 BULK CKU14Z5V	GUIDING	1
155	C138	4	X	A	22-3102012-00-18	CAP ELEC KR1 1000uF 10V 20% RAD ST10 KR1-10V102ME	KOSH-IN	1
156	C138	4	X	A	22-3102012-00-24	CAP ELEC SG 1000uF 10V 20% RAD ST5 2SG1AVAB108M	SAM-MA	1
157	C138	4	X	P	22-3102012-00-00	CAP ELEC GS 1000uF 10V 20% RAD ST5 BULK GS102M10G130CXC	CAPXON	1
158	C139	4	X	A	22-3102012-00-18	CAP ELEC KR1 1000uF 10V 20% RAD ST10 KR1-10V102ME	KOSH-IN	1
159	C139	4	X	A	22-3102012-00-24	CAP ELEC SG 1000uF 10V 20% RAD ST5 2SG1AVAB108M	SAM-MA	1
160	C139	4	X	P	22-3102012-00-00	CAP ELEC GS 1000uF 10V 20% RAD ST5 BULK GS102M10G130CXC	CAPXON	1
161	C140	4		A	22-3221022-00-18	CAP ELEC KR1 220uF 16V ±20% RAD BULK KR1-16V221MC	KOSH-IN	1
162	C140	4	X	A	22-3221022-00-02	CAP ELEC SM 220uF 16V 20% RAD ST2.5 BULK SM1C221MXXN0812	ELITE	1
163	C140	4	X	P	22-3221022-00-08	CAP ELEC SM 220uF 16V 20% VER BULK	YEC	1

I) LNB voltage and short circuit protection testing

A) 13/17V testing

- Switch on unit
- Connect a voltage meter and 50 ohm load on the tuner LNB output
- Select VER polarization, the output should be 13V +/- 0.5V
- Select HOR polarization, the output should be 17V +/- 0.5V

B) 22KHz testing

- Connect a oscilloscope to the tuner LNB output
- Switch to High band, check LNB band control signal (22+/-4KHz, 0.6+/-0.2V, Duty50+/-10%)

C) short circuit protection testing

- Short the tuner LNB output power
- The unit will return to stand-by mode
- Switch on unit, the LNB power will appear again

IV) J7E Scart pin assignment table

Scart VCR	Scart TV	Scart Decoder
audio out R	audio out R	audio out R
audio in R	nc	audio in R
audio out L	audio out L	audio out L
gnd	gnd	gnd
gnd	gnd	gnd
audio in L	nc	audio in L
nc	blue	blue
function sw.(in)	function sw.(out)	function sw.(in)
gnd	gnd	gnd
nc	nc	video unclamp unfilter
nc	green	green
nc	nc	base band
gnd	gnd	gnd
gnd	gnd	gnd
nc	red	red
nc	fast blank	fast blank
gnd	gnd	gnd
gnd	gnd	gnd
video out	video out	video out
video in	nc	video in
gnd	gnd	gnd

(V) IQC major components testing:

A) Tuner testing:

- Connect +5V and +27V power supply to tuner pin 12, 14
- Connect IF signal to tuner F plug
- Connect pin 17,18 to a computer IIC bus interface
- Connect B/B output pin 5 to a receiver tuner B/B input
- Check the AFC range 'lock in' = 1 MHz +/- 300KHz  
'lock out' = 1.4 MHz +/- 400KHz
- Check the tuning range 950 to 2050 MHz
- Check AGC output -25 dBm = 0.7 V +/- 0.2V  
-63 dBm = 2.3 V +/- 0.2V

B) Switching transformer testing:

- Safety parameter testing
- Check the inductance of the all rounding

C) Modulator testing:

- Same as the testing procedure G)

B) Input voltage range testing:

- a) Connect the same loading as A) to the power supply
- b) Set the AC input voltage to 160V
- c) Check the output voltage as A),c)
- d) Change the loading to
  - pin 3      5.1ohm 10W
  - pin 4      18 ohm 10W
  - pin 5      open
  - pin 7      open
- e) Check the output voltage as A),c)

2) Remote control testing

- a) Check the receiving distance with a standard receiver > 10Meter
- b) Check all remote key function

3) Front panel board testing

i) IR. receiver testing

- a) Check the receiving distance with a standard remote control > 10 Meter

ii) LED testing

- a) Connect the Front panel board to a dummy unit
- b) Switch on the unit
- c) Select the test mode by remote control
- d) Select the LED testing row
- e) Use +/- keys to check all LED segments

iii) Key board testing

- a) Check all keys function with a standard receiver

4) Main chassis testing

A) OSD testing

- a) Connect a vector scope to Scart TV video output pin 19
- b) Switch on the unit and disconnect IF input signal
- c) Check the vector, display stop rotate and indicate PAL system
- d) Receive a PAL signal and turn on the audio menu
- e) Check the OSD on the center position

B) Base band output testing

- a) Connect IF input signal to tuner
  - (16MHz dev, PAL, positive, audio L=7.38 1K, 50KHz dev
  - R=7.56 1K, 50KHz dev)
- b) Select a pre-set channel (video high, positive)
- c) Check all Base band output level with 75 ohm load, 1Vp-p +/- 0.1V
  - Scart decoder pin 12 (Base band output)
  - Scart decoder pin 10 (De emphasis base band output)

C) Video output testing

- a) Do the same setup as A) & B)
- b) Check all video output level with 75 ohm load, 1Vp-p +/-0.1V
  - Scart VCR pin 19
  - Scart TV pin 19
  - Scart Decoder pin 19
- c) Set VIDEO LEVEL to LOW
- d) Check video output should be 0.76Vp-p +/-0.1V

## E) SWITCHING POWER SUPPLY

< Warning 2 >: A line isolation transformer must be used during the service.

< Warning 1 >: It is better to use a dummy load to service the switching power supply, otherwise some expensive components on the main PCB may be damaged during the service.

The dummy loads are listed as follow:

pin 1 : gnd.  
pin 2 : short to gnd.  
pin 3 : 5.1 Ohm to gnd.  
pin 4 : 18 Ohm to gnd.  
pin 5 : 220 Ohm to gnd.  
pin 6 : short to gnd.  
pin 7 : 56 Ohm to gnd.  
pin 8 : nc.

### (1) If power supply cannot start up.

(a) Measure the voltage at following points. If the voltage is different, please check and replace the following parts.

Test point	Normal voltage	Check/Replace
D800 '+' to hot gnd	> 260 Vdc	Items between AV. plug and D800
D802 anode to hot gnd	> 260 Vdc	R804
U801 pin 7	+ 12 Vdc	R802, D801

(b) Check Q801 and replace it.

(c) Check any open or short circuit on the PCB.

### (2) If power supply output flashing.

(a) Measure the voltage at following points. If the voltage is different, please check and replace the following parts.

Test point	Normal voltage	Check/Replace
D808 anode to gnd	5.9 Vdc	D808, C815
D807 anode to gnd	13.9 Vdc	D807, C814
D806 anode to gnd	33.5 Vdc	D806, C813
D801 anode to hot gnd	12 Vdc	D801, C805
J802 pin 7 to gnd	14/18Vdc	Q802, D809, L802, C816

(b) Check and replace U802(opto-coupler) and U803(TL431)

(c) Check any open or short circuit on the PCB.

### (3) Without the 13/17 voltage control (J802 pin 6).

(a) Check R839 (12K 1%), R836 (27K 1%)

(b) Check R837 (1K), Q805 (2SC1815Y)

### (4) Without the 13/17 voltage on/off control (J802 pin 2).

(a) Check R834, Q804, R833

### (5) Without LNB power supply (J802 pin 7).

(a) Check Q802, D809, L802

### (6) Without +12 Volt (J802 pin 4).

(a) Check Q807 U804B

### C) AUDIO CIRCUIT

- (1) No scart TV sound output or noisy sound.

Connect IF input signal to the tuner, and setup a correct channel setting for both video and audio.  
Check the +5V supply of U301 pin 26, 16 first.

- (a) Check scart DECODER audio output pin 1,3 and Q303, Q302 emitter.

OK. check U203, Q211, Q212

No good, do the next.

- (b) Check U303 pin 3, 13 audio output

OK. check Q303, Q302

No good, do the next.

- (c) Switch to stereo mode. Check U302 pin 4, 11 audio signal

OK. check U303.

No good, do the next.

- (d) Check TP4, 5 emphasized audio.

OK. check U302.

No good, do the next

- (e) Check C355 audio subcarrier input waveform.

OK. i) Re-align the IFT303, 302 following the alignment instruction.

ii) Check the ceramic filter CF302, 303, 304, 305.

iii) Check D301, and any open or circuit point.

iii) Check U301 pin 27,28 IIC bus, 4MHz clock.

iv) Replace U301.

No good. check Q301, Q342, and base band signal of Q112 emitter, if no signal at all then follow video circuit instruction (1) start from (c).

- (f) Switch to mono audio mode. check TP3.

OK. check U303.

No good, do the next.

- (g) Check C355 audio subcarrier input waveform.

OK. i) Re-align the IFT301 following the alignment instruction.

ii) Check the ceramic filter CF301.

iii) Check D301, and any open or circuit point.

iii) Check U301 pin 27, 28 IIC bus and pin 1, 4MHz clock.

iv) Replace U301.

No good. check Q301, Q342, and base band signal of Q112 emitter, if no signal at all then follow video circuit instruction (1) start from (c).



## TROUBLE SHOOTING GUIDE

### A) GENERAL TROUBLE SHOOTING

#### (1) The receiver will not power up

##### (a) No power at all

- i) Check fuse
- ii) Check power cord/plug
- iii) Check switching power supply.

##### (b) Stand-by LED is flashing, but receiver can not be switched on.

- i) Check CPU reset circuit.
- ii) Check switching power supply.

##### (c) Stand-by LED is flashing. Switching on the unit, it automatically turn off.

- i) Check the LNB supply voltage on tuner IF input Plug.
- ii) If LNB voltage is 13 or 17 volt, check R420, Z405, R421 and Z402 on the main PCB.
- iii) No LNB voltage. Check switching power supply.

##### (d) Check CPU control circuit.

#### (2) No picture output

##### (a) Without blue background

- i) Check OSD IC (U202) on main PCB.
- ii) Check video output buffer Q209, Q210 on main PCB.
- iii) Check video circuit.

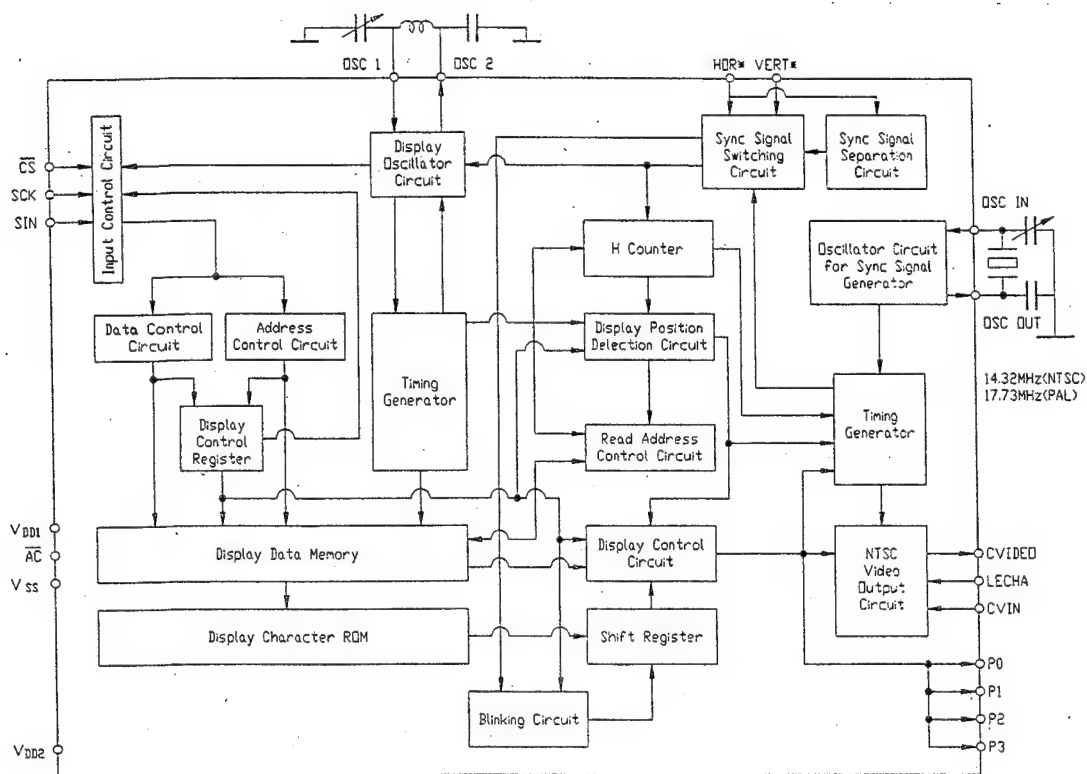
##### (b) With blue background, but no picture received.

- i) Check tuner IF input.
- ii) Check Video circuit.

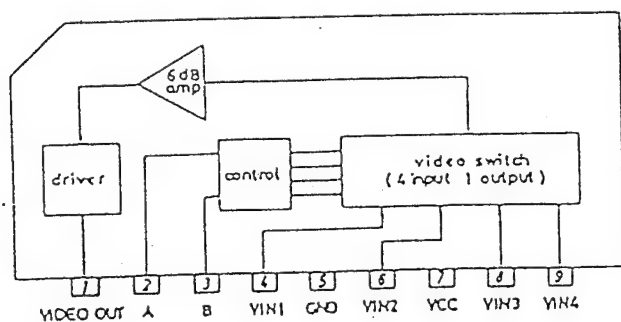
#### (3) No sound output or noisy sound

##### (a) Check Audio circuit.

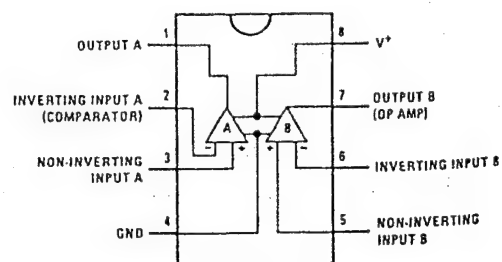
# BLOCK DIAGRAM



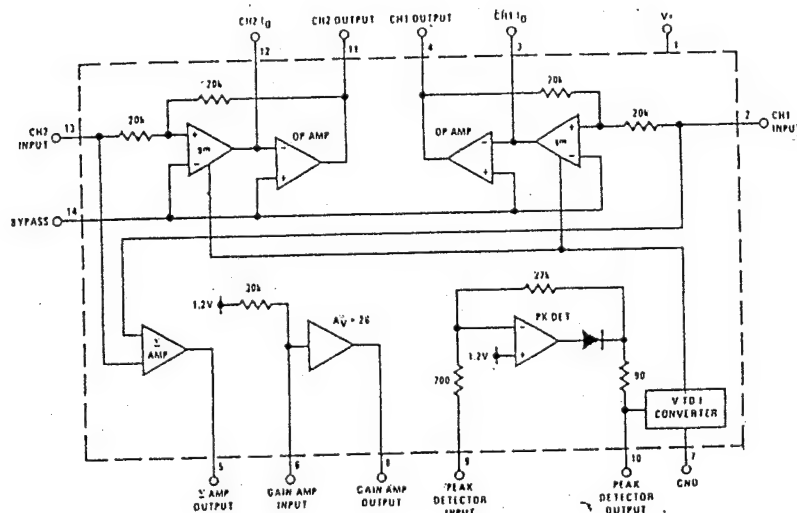
M35011-001SP



LA7952



LM392



LM1894

6) Audio IF adjustment

A) IFT301 for mono (10.7MHz)

- a) Set the sweep marker generator to 10.7MHz  $\pm$  50KHz
- b) Connect the sweep marker generator output to U301 pin 21 through a 1000pF cap
- c) Connect the wide screen monitor Y input to U301 pin 8
- d) Adjust IFT301 to make the 10.7MHz marker on the center

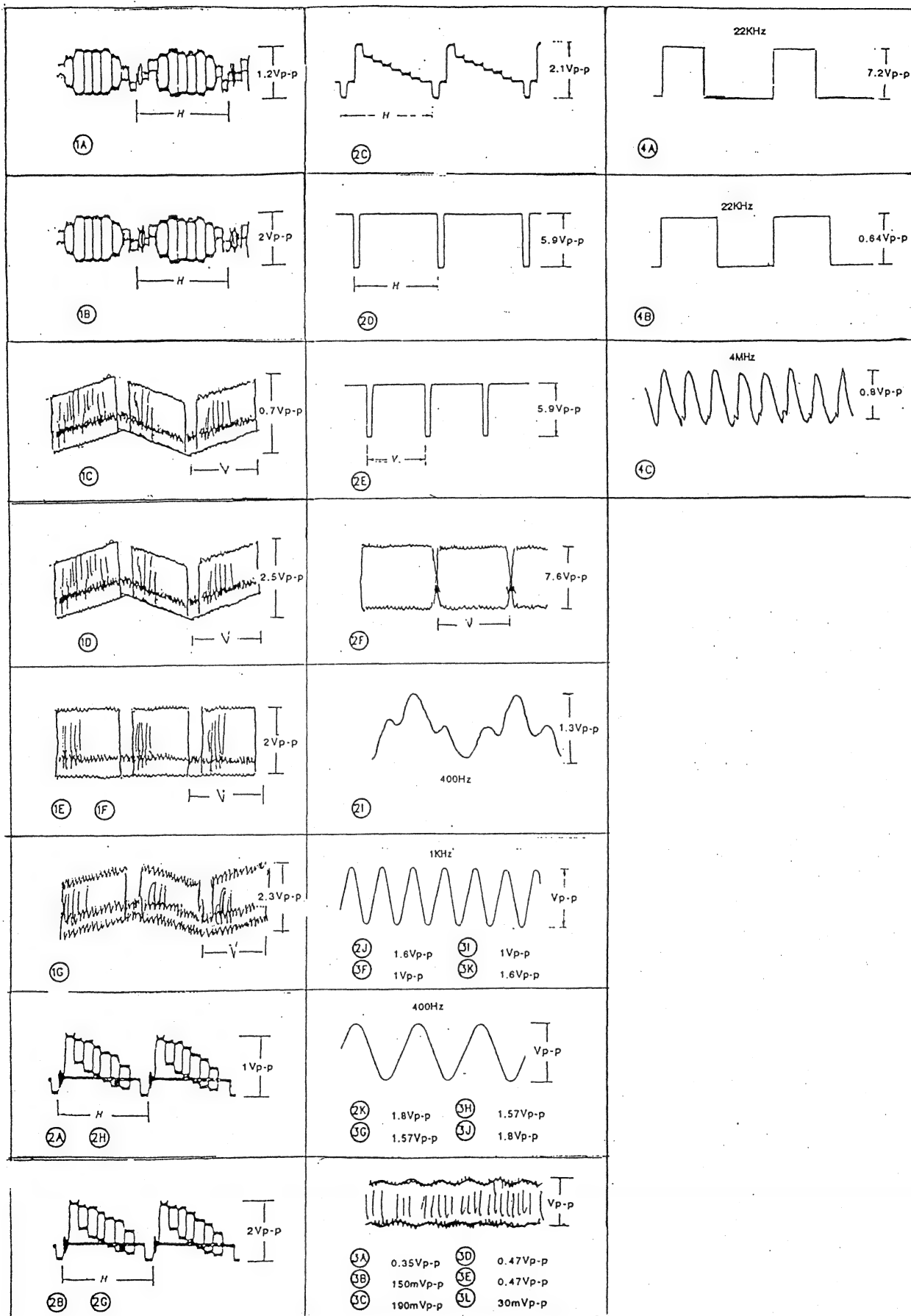
B) IFT 303 for stereo (10.7MHz)

- a) same as (A)
- b) Connect the sweep marker gen. output to U301 pin 22 through a 1000pF cap
- c) Connect the monitor Y input to U303 pin 14
- d) Adjust IFT303 to make the 10.7MHz marker on the center

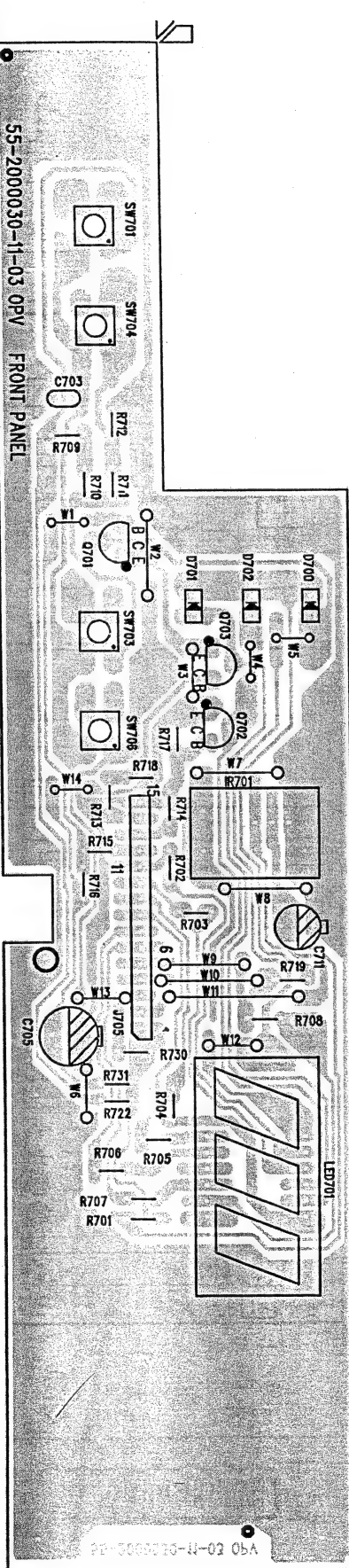
C) IFT 302 for stereo (10.52MHz)

- a) Set the sweep marker generator to 10.52MHz  $\pm$  50KHz
- b) same as (B)
- c) Connect the monitor Y input to U302 pin 11
- d) Adjust IFT302 to make the 10.52MHz marker on the center

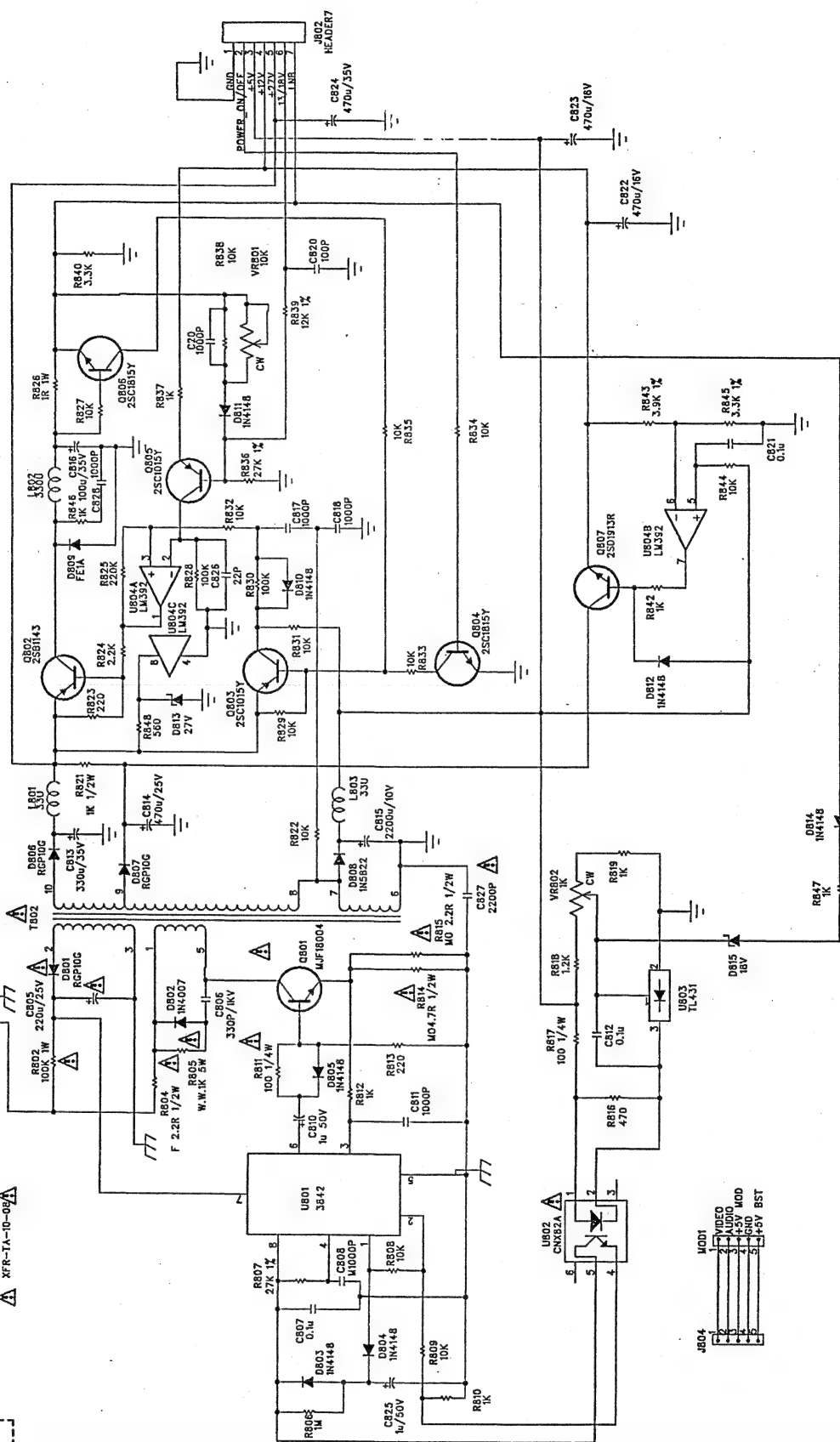
# WAVE FORM DIAGRAM

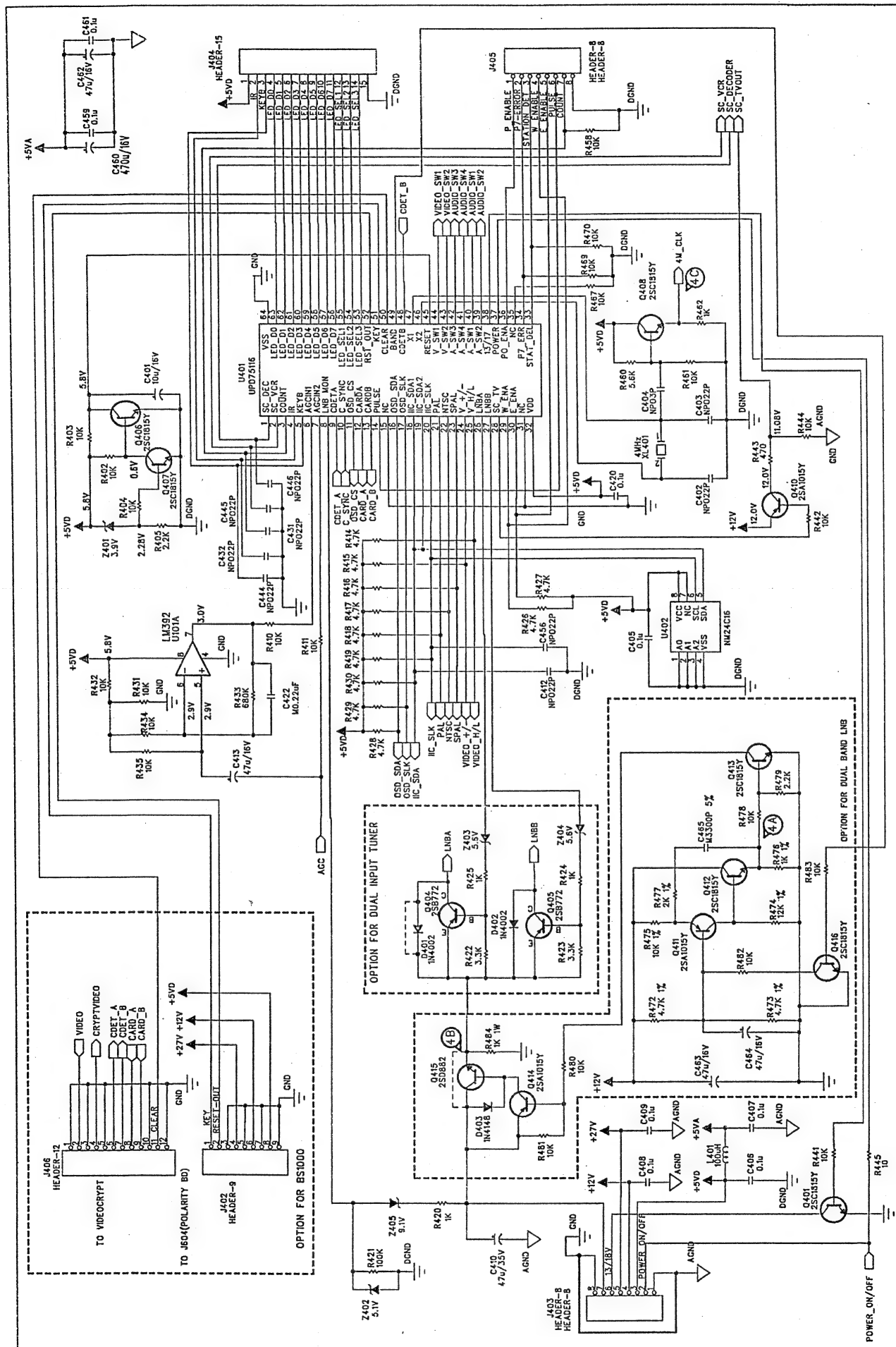


55-2000030-11-03 OPV FRONT PANEL



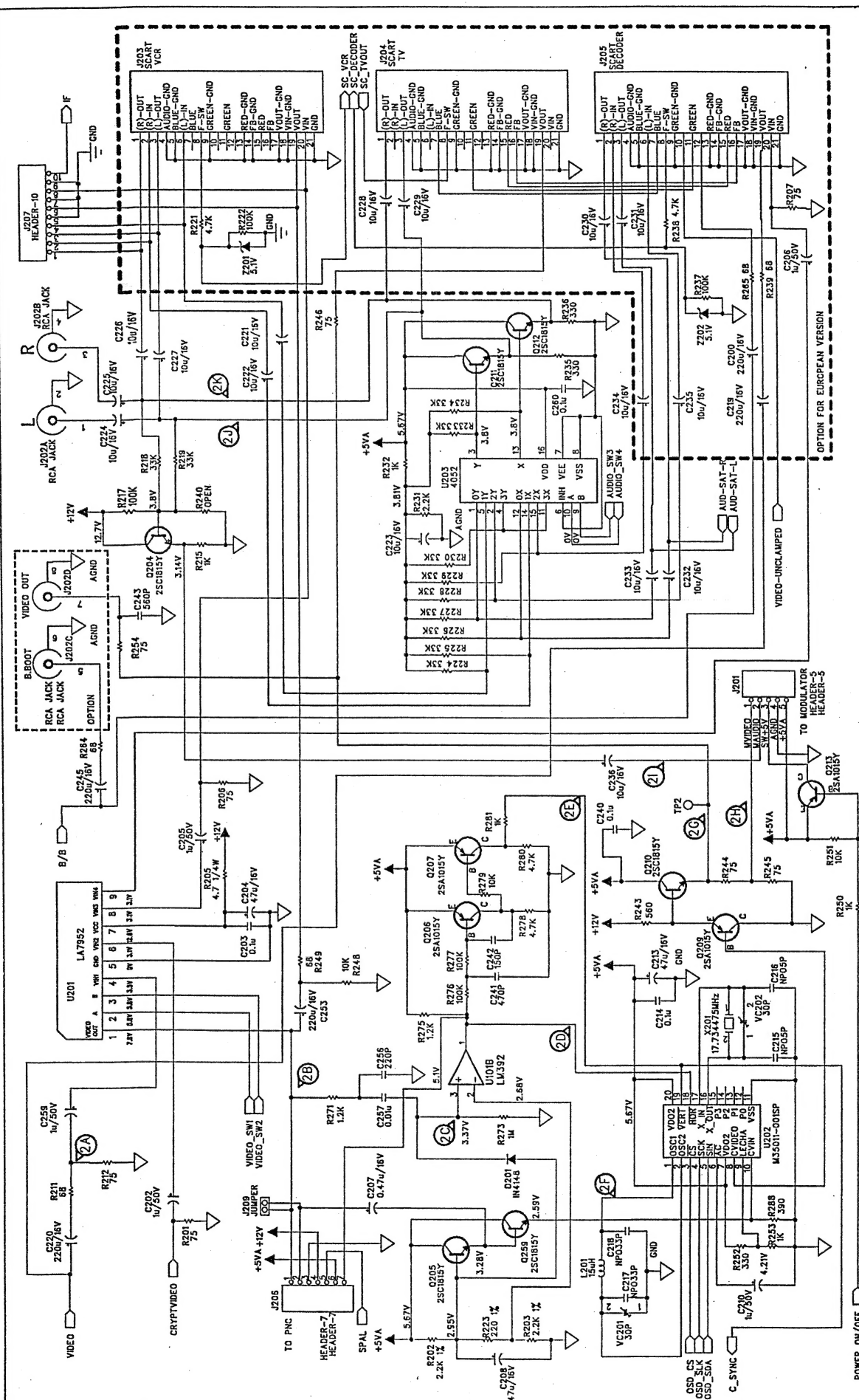
55-2000030-11-03 OBA

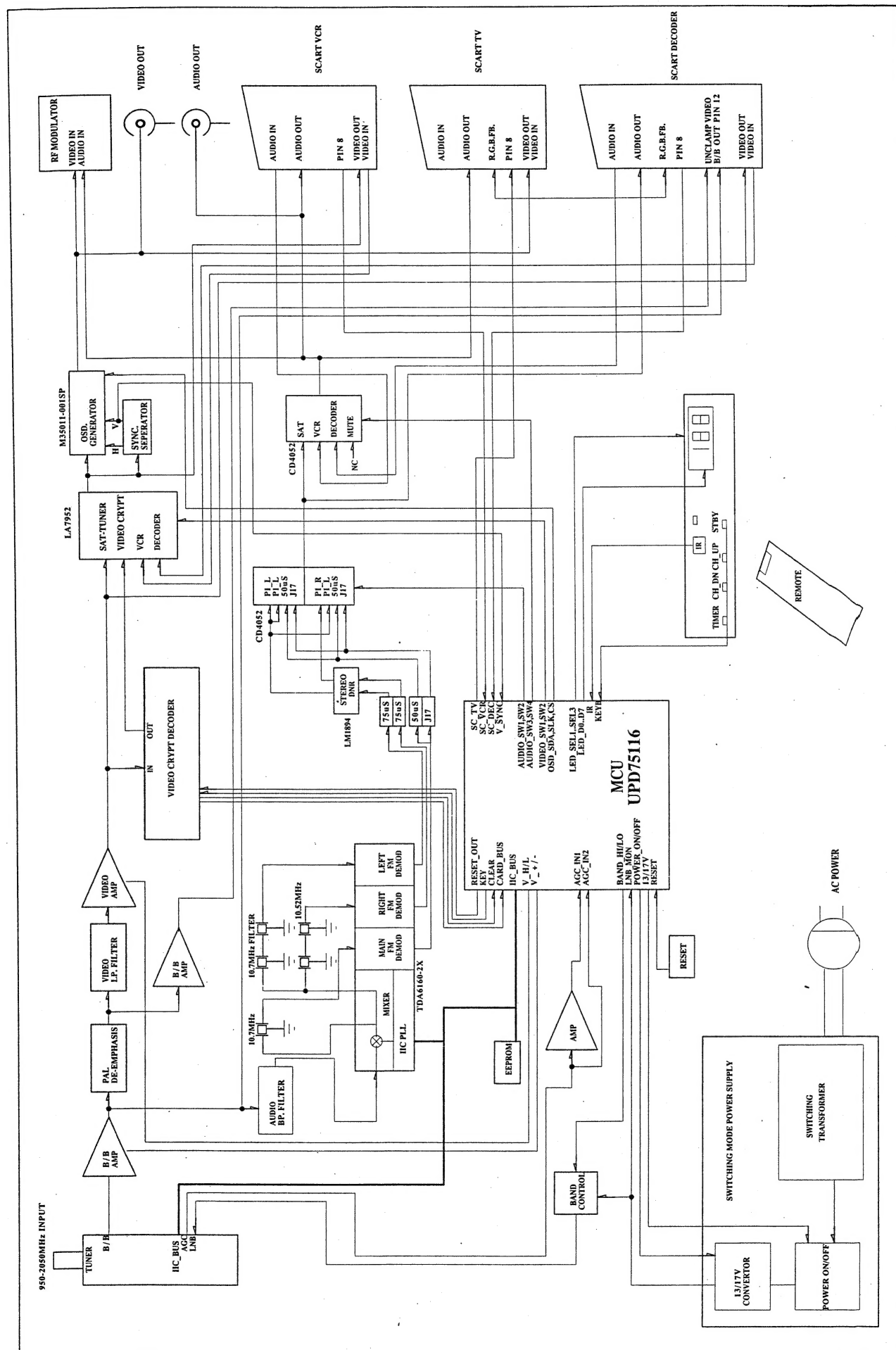
[illegible]



LNB







6) Video amplifier and gain selection

The Video amplifier makes the Video output level 2Vp-p. The gain of the amplifier can be controlled by the CPU via Q106 and R150.

7) Clamp circuit and 75 ohm driver

The dispersal signal of triangular wave synchronizing the field frequency is superposed on the demodulated signal for preventing the energy concentration of satellite signal. The dispersal frequency is 25 Hz with PAL and 30 Hz with NTSC. The dispersal is rejected by clamp circuit which is Q134, Q130, C173. The type of this circuit is sync tip clamp. The 75 ohm driver Q147, Q152 drive the decoder SCART video output into 75 ohm load.

8) Video source selector

There are four video sources in this receiver, they are 1) Satellite video, 2) Encrypted video(option), 3) VCR video, 4) Decoder video. The video output signal of SCART TV and RCA jack is one of the four video sources which is selected by CPU via U201.

9) Hor/Ver synchronization signals detection

The horizontal synchronization pulse is separated by U101 voltage comparator, it used to synchronize the OSD generator. The vertical pulse is detected by a integration circuit which is R276, C241. Transistor Q206 and Q207 are used to wave shaping, The CPU will used the pulse to identify the video signal and PAL/NTSC system.

10) OSD generator

The OSD is generated by U202 which is PAL color system, the PAL color sub carrier 4.433619 MHz is generated from the crystal oscillator 17.734475 MHz and divided by four. The horizontal and vertical pulse inputs synchronize the OSD with the input video signal. The dot clock generator L201, C217, C218 controlled the width of the OSD.

C) AUDIO CIRCUIT.

1) Audio bandpass filter

This bandpass filter is used to reject the video signal, it consists of trap filter section L302, C302, C303, C301 and a lowpass filter section L303, C305.

2) Audio channel selection circuit

The audio sub carrier will be converted to a IF frequency 10.7 MHz, it is done by a PLL frequency synthesizer and a IF mixer which is U301. The PLL frequency can be controlled by the CPU via IIC bus (U301) pin 27 28.

3) Audio FM demodulator circuit

The IF signal 10.7 MHz is provided to the three FM demodulator through the three bandpass filter (1) CF304 & CF303, (2) CF302 & CF 305, (3) CF301, filter (1) and (2) are 150 KHz for the stereo pair, the filter (3) is 280 KHz for the mono audio. The IF signal will be demodulated by the three FM demodulator which is inside the U301.]

4) Audio de-emphasis circuit

The stereo audio is 75uS decompasised by R315, C317 and R316, C321 and provided to the DNR circuit.

The mono audio has two de emphasis circuit, they are R318, C323 (50uS) and R319, R320, C322 (J17).

ITEM	PART NO.	DESCRIPTION	QTY.
1	13-0300803-04-00	SELF TAPPING SCREW Ø3x8mm BA TYPE	4
2	10-0070013-01-00	TOP CABINET	1
3	13-0301000-02-00	SELF TAPPING SCREW Ø3x10mm PA TYPE	15
4	80-0000707-00-00	MAIN BOARD	1
5	80-0000707-00-01	POWER SUPPLY BOARD	1
6	80-0000707-00-02	FRONT PANEL BOARD	1
7	10-0070072-71-10	TIMER KNOB	1
8	10-0070062-71-20	CHANNEL KNOB	1
9	10-0070082-71-10	STANDY KNOB	1
10	10-0070030-71-10	FRONT PANEL	1
11	10-0070057-71-00	BLANK PLATE	1
12	10-0070041-04-10	FRONT DISPLAY LENS	1
13	10-0070024-01-00	BOTTOM CABINET	1
14	17-0981280-04-22	FOOTPAD	4
15	62-9007003-30-07	BLANK LABEL	1
16	17-1181270-40-21	BUSHING	1
17	36-2213110-08-17	POWER CORD	1
18	13-0301004-04-00	SELF TAPPING SCREW Ø3x10mm KA TYPE	4
19	62-7200001-00-00	BACK LABEL	1
20	19-0070013-23-10	REMOTE CONTROL OVERLAY	1
21	10-0070143-01-10	REMOTE CONTROL TOP CABINET	1
22	18-0070036-12-00	RUBBER KEY PAD	1
23	13-0260600-02-00	SELF TAPPING SCREW Ø2.6x6mm PA TYPE	2
24	10-0070171-03-00	REMOTE CONTROL LENS	1
25	55-1070040-31-04	REMOTE CONTROL P.C.B.	1
26	13-0260600-24-00	SELF TAPPING SCREW Ø2.6x6mm PB TYPE	1
27	10-0070154-01-00	REMOTE CONTROL BOTTOM CABINET	1
28	12-0070240-70-00	SPONGE	1
29	11-0070137-20-00	BATTERY CONTACT (+/-) PLATE	1
30	13-0200500-24-00	SELF TAPPING SCREW Ø2x5mm PB TYPE	1
31	10-0070161-01-00	REMOTE CONTROL BATTERY DOOR	1
32	11-0070127-20-00	BATTERY CONTACT (+) PLATE	1
33	11-0070117-20-00	BATTERY CONTACT (-) PLATE	1